WORKING PLAN

FOR THE

AJMERE-MERWARA RESERVED FORESTS,

BY

E. M COVENTRY, Esq.,

Assistant Conservator of Forest

RAJPUTANA AGENCY.

PUBLIC WORKS DEPARTMENT.

No. 2800 S.

Dated Mount Abu, 15th October, 1894.

Extracts from the Proceedings of the Chief Commissioner of Ajmere-Merwara in the Public Works Department (Forests.)

READ endorsement No. 1536, of 24th December 1892, from the Government of India, Revenue and Agricultural Department, deputing Mr. Coventry for preparation of the Working-Plan of the Ajmere-Merwara Reserved Forests.

READ letter No. 44 F, of 3rd May 1893, from the Commissioner, Ajmere-Merwara, forwarding the Working-Plan for the Ajmere-Merwara Forests, prepared by Mr. E. M. Coventry, who was specially deputed from Berar, together with copy of correspondence in connection with the points discussed in letter No. 22 W. P., of 8th February 1893, from the Inspector General of Forests to the Government of India.

READ letter No. 133 F, of 17th August 1893, from the Commissioner, Ajmere-Merwara, forwarding the Working-Plan of the Ajmere-Merwara Reserved Forests, to the Inspector General of Forests for opinion and remarks.

READ letter No. 153 W. P., of 20th September 1893, from the Inspector General of Forests, submitting for consideration and orders of the Local Administration, Rajputana, the Working-Plan of the Ajmere-Merwara Reserved Forests with his observations.

READ letter No. 30 F, of 16th May 1894, and enclosure, from the Commissioner, Ajmere-Merwara, forwarding Draft of Rules for grazing in the Ajmere-Merwara Reserved Forests with his remarks and observations.

READ letter No. 1615 S, of 15th June 1894, from the Secretary to the Chief Commissioner in the Public Works Department, asking the Commissioner to frame for approval and publication Draft Notification embodying the grazing Rules in substitution of those in force under Section 9 of the Ajmere Forest Regulation of 1874.

READ letter No. 150 F, of 15th September 1894, and enclosure, from the Commissioner, Ajmere-Merwara, communicating remarks and recommendations on the Working-Plan for final approval and sanction of the Chief Commissioner.

Observations.

1. The Grazing Rules and Records of rights referred to in Commissioner's letter No. 150 F. have been dealt with and disposed of separately.

2. The further points in the Working-Plan for notice are :—

(I.) The consumption of fuel in the towns of Ajmere and Beawar is largely under estimated in the Working-Plan, and with this is the connected question of the price of forest fuel. The Chief Commissioner concurs with the Commisioner, Ajmere-Merwara, that these questions require further examination and can be left for separate settlement later.

(II.) The arrangement of "Coups" suggested in the Working-Plan which the Extra-Assistant Conservator criticises unfavourably is tentatively accepted. As suggested by the Commissioner it can be modified later, if it proves inconvenient in practice.

III.) The Extra-Assistant Conservator of Forests, Ajmere-Merwara, prefers that the two small areas of 50 acres in Jalia and Balad treated as "Babool High Forest" be converted into "Shishum High Forest." This is a point on which the Inspector General of Forests will perhaps give an authoritative opinion.

IV.) In para. 123, Mr. Coventry recommends that free grants of timber shall be restricted to the areas which it is proposed to coppice during the following year. The Commissioner agrees with the Extra-Assistant Conservator of Forests in the opinion that such grants may be made without injury from all areas which have not been actually brought under coppice treatment, and to avoid damage to the forests, he further agrees with the Forest Officer in the opinion that no grazing for the first 10 years should be allowed in coppiced arear. The Chief Commissioner accepts these views.

) The Commissioner's recommendation that the Fire Line near Pipli, proposed by the Extra-Assistant Conservator, in addition, should be added to the list given in para. 149 of the Working-Plan, is accepted.

3. Resolution.—Subject to the foregoing remarks the Chief Commissioner approves finally of the Working-Plan of the Ajmere-Merwara Reserved Forests.

Orders.—Ordered that the Working-Plan with all the important correspondence connected with it be printed and bound up in a book and that twelve

copies be submitted to the Government of India, Revenue and Agricultural Department (Forests) for orders, in accordance with Forest Department Code, Chapter II, para. 88, Fourth Edition.

By Order,

(Signed) H. F. WHITE, M.I.C.E.,

Secretary to the Chief Commissioner, Ajmere-Merwara, in the Public Works Department.

No. 1534 F.

GOVERNMENT OF INDIA,

REVENUE AND AGRICULTURAL DEPARTMENT

POST COPY OF SERVICE MESSAGE.

(Forests.)

Calcutta, the 24th December, 1892.

From Calcutta.

FROM THE REVENUE AND AGRICULTURAL DEPARTMENT

To Hyderabad.

TO THE RESIDENT AT HYDERABAD.

"Your No. 3855 of 26th ultimo to the Chief Commissioner, Central Provinces, Government of India accept with thanks your offer to depute Mr. Coventry to Ajmere for three months and trust he will be permitted to proceed there as soon as possible. Mr. Coventry's salary and travelling allowance during period of deputation will be chargeable against Ajmere Forest Department."

No. 1536 F.

Copy, with copy of the correspondence marginally noted forwarded to the Chief Commissioner of Ajmere for information, in continuation of the correspondence ending with the endorsement from this Department No. 1341 F, dated the 28th October last.

From Chief Commissioner, Central Provinces, No. 4045, dated 26th October 1892, and No. 4842, dated 14th December 1892, with enclosure.

By order, &c.,

(Sd.) E. D. MACLAGAN,

Officiating Under-Secretary to the Government of India

No. 44 F.

From

THE OFFICIATING COMMISSIONER, AJMERE-MERWARA.

To

THE SECRETARY TO THE CHIEF COMMISSIONER,
AJMERE-MERWARA, IN PUBLIC WORKS DEPARTMENT,

Dated Ajmere, the 3rd May, 1893.

SIR,

In continuation of the correspondence ending with your endorsement, No. $\frac{233}{C}$ S, dated 2nd March 1893, I have the honor to forward in original the "Working-Plan" for the Ajmere-Merwara Forests, prepared by Mr. E. Mills Coventry, who was specially deputed from Berar for this duty, together with its accompanying maps, nine in number.

2. I have at the same time the honor to forward a copy of the correspondence, noted in the margin, in connection with the points discussed in letter No. 22 W. P., dated 8th February 1893, from the Inspector General of Forests to the Government of India, a copy of which was received with your endorsement No. 233 C, dated 2nd March 1893.

(I.) From Mr. Coventry dated 18th March 1893.
(II.) To Extra-Assistant Conservator of Forest, No. 1 F, dated 3rd April 1893.
(III.) From Extra-Assistant Conservator of Forest, No. 25, dated 20th April 1893.

3. With reference to Rule 88 of the Forest Department Code, I have the honour to suggest that the Working-Plan and connected correspondence may be printed at the Government Press and sent to this office for consideration before being finally submitted to the Inspector General of Forests at Simla.

I have the honor to be,
Sir,
Your most obedient servant,
(Sd.) A. MARTINDALE,
Officiating Commissioner, Ajmere-Merwara.

No. 133-F, dated Ajmere, the 17th August, 1893.

From A. H. I. Martindale Esquire, C.S.
~~The~~ Officiating Commissioner,
AJMERE-MERWARA.

To
The Inspector-General of Forests,
SIMLA.

In accordance with the provisions of Rule 88 of the Forest Department Code, and with reference to the correspondence connected with your letter No. 22 W. P., dated the 8th February 1893, to the Chief Commissioner of Ajmere-Merwara, regarding the preliminary report on the Forests of Ajmere-Merwara, I have the honour to forward the Working-Plan (in duplicate) of those forests, prepared by Mr. E. M. Coventry, who was especially deputed for the purpose from Berar.

2. It is understood from Rule 88 that no comments upon the Working-Plan are required at this stage; but that after you have forwarded it with your opinion and remarks to the Local Government, the District authorities will have an opportunity of expressing their views upon the suggestions made in it for future working before it is finally passed.

3. I have at the same time the honour to forward, for your consideration, a copy of the correspondence noted in the margin in connection with your remarks regarding the preliminary report already mentioned.

* From Mr. E. M. Coventry, dated 18th March 1893.
To Extra-Assistant Conservator of Forests, Ajmere-Merwara, No. 1.-F., dated 3rd April 1893.
From Extra-Assistant Conservator of Forests, Ajmere-Merwara, No. 25, dated 20th April 1893.

Dated Ajmere, the 18th March, 1893.

From
E. M. Coventry, Esq., (Working-Plans Officer,
AJMERE.

To
The Commissioner,
AJMERE-MERWARA.

I have the honour to inform you that I have now seen nearly all the Ajmere-Merwara forests, and to forward my suggestions as to their future management.

2. The Inspector General of Forests, in his printed remarks on the preliminary report, says that "the regularization of the grazing and the

"selection of areas which must in the main be treated for the production "of fodder is practically the most important question with which the plan "should deal."

3. The Ajmere forests form 1·4 per cent. of the total area of the district. The price of fuel in Ajmere is very high; and people from Ajmere go to the Srinagar and Danta reserves, eight miles distant, merely to collect dry thor and dry sticks; the growth in these forests is very poor, but everything in them can be sold; so that I think grazing should not be allowed in any of the Ajmere forests, as there is no doubt that cattle-grazing does great deal of harm principally by rendering the ground so hard that no seedlings can germinate, and also by trampling on and destroying any that do come up.

4. These forests will always contain a large quantity of grass, and the period during which the cutting of grass is allowed might be extended if considered desirable, but I think that grazing should be altogether excluded except in years of great scarcity.

5. In Merwara the same remarks apply to the forests in the Beawar tehsil, with the exception of the Beliawas and Kotra blocks. In Beliawas grazing might be allowed as has been done hitherto. Kotra contains a large quantity of very good grass, but the forest growth is poor, so that this block might be treated as a fodder reserve

6. In the Todgarh tehsil the forests are far from the markets, and very little produce is extracted from them, so that grazing might be allowed in them. As regards regulating the grazing, one-half of these forests might be opened for a period of ten years, and at the end of ten years grazing might be allowed in the other half, the first half being closed to grazing. The half which is closed would form a reserve to be opened only in times of great scarcity.

7. Fuel cuttings should go on as at present, but a larger area should be cut annually, so that, at the end of twenty years, the whole of the forest will have been cut. Cuttings might also be commenced in the Taragarh Valley and in the Sheopura block near Beawar, and also in the small birs near Beawar.

No. 1.-F., dated the 3rd April, 1893.

Memo.

By A. H. T. MARTINDALE, ESQ., OFFICIATING COMMISSIONER, AJMERE-MERWARA.

Copy forwarded to the Extra-Assistant Conservator of Forests, Ajmere-Merwara, with a request that he will submit a clear but brief report showing

what the practice has hitherto been as regards each forest reserve in Ajmere-Merwara in connection with (1) *grazing* both in times of scarcity and in ordinary years, (2) *grass cutting*, and (3) *fuel cuttings*.

2. The report should show what changes Mr. Coventry's proposals, if accepted, will introduce, together with an expression of the Extra-Assistant Conservator's own opinion whether his suggestions may with advantage be adopted, or what modifications, if any, are required.

No. 25, dated 20th April 1893.

From

THE EXTRA-ASSISTANT CONSERVATOR OF FORESTS,
AJMERE-MERWARA.

To

THE COMMISSIONER AND CONSERVATOR OF FORESTS,
AJMERE-MERWARA.

With reference to Mr. Coventry's proposals for the future working of the Ajmere and Merwara forests communicated to me under cover of your office endorsement No. 1-F., dated 3rd instant, I have the honour to state as follows:—

With the view to provide the continued growth and reproduction of fodder trees and bushes on which cattle in these districts so largely depend in absence of grass in very dry years, and also to meet the local demand for fuel wood which is gradually growing, Mr. Coventry very properly proposes that all the reserves near Ajmere and Beawar be closed against grazing except in famine years, when all the reserves will have to be thrown open. The number of such reserves is 19* out of 24. It might be said that the closing of such a large number of villages will cause undue hardship to the surrounding villagers. But in the first place, grazing is not a right under the Regulations, and (2) grazing has not been allowed in ordinary times except in years of scarcity, and so they are not accustomed to it. As a set off the period for cutting grass (which is six weeks in Ajmere and four months in Merwara) might, if desired, be further extended so as to give the villagers ample opportunity to cut and store as much grass as they

* Mehwa Bir.	Dilwara Bir.
Madar Hill.	Chang Gate Bir.
Makerwali.	Jalia.
Nagpahar.	Balad.
Taragarh.	Chang.
Srinagar.	Borwar.
Danta.	Kotra.
Rajosi.	Sillberi.
Rajgarh.	Sheopura.
	Anspahar.

can for their cattle. This is in accordance with the policy of the Government of India. The forest reserves in which Mr. Coventry thinks cattle might be annually allowed are 5 :—

1. Todgarh.
2. Dewair.
3. Banjari Mandlan.
4. Amner.
5. Beliawas.

(All in Merwara.)

These reserves are far removed from the market (Beawar) and from he nearest railway line, and are such that either the growth is so poor that it annot be sold as salar forests of Banjari-Mandlan, Amner, &c., or they are dvanced enough to admit of grazing at Todgarh. Hitherto only three reerves—Todgarh, Dewair and Beliawas—have been opened annually in accordnce with professional advice of two Forest Officers, Messrs. Moir and Fernandez. Mr. Coventry under the proposed arrangement adds on two more reserves, *Amner and Banjari-Mandlan.* I see no objection, but I think that either the number of cattle in these two reserves should be restricted to what the areas can support, or, if the full number of cattle be admitted, the period for grazing be reduced from 4 to 2 months or more or less as the case may be, so as to reduce unnecessary strain on the forest. I quite agree with Mr. Coventry in the selection of grazing areas, but I am sorry I have to differ from him on one point. In order to regulate grazing he proposes to divide each of these reserves into two portions, to be opened in rotation of ten years. My objections are—(1) the area of two reserves, Amner and Banjari-Mandlan is small in comparison with the number of cattle owned by villagers, *vide* annual reports for past years, so that the acreage per head is already low. If these forests be treated on the proposed plan, the acreage would be still further reduced; the forests will be over-grazed and reduced to the condition of outside village lands. (2) Villages are irregularly situated all along the reserve, and it would be impossible to draw a line through the middle of the reserve which would satisfy the villagers concerned. The distance to be daily travelled by cattle to and from the forests would be quite prohibitory in some instances and also when the forest is internally divided up into a number of areas belonging to each village. I doubt if the village limits will be observed intact for grazing purposes. (3) There are but very few places inside forest, where water in the hot season is found. At present cattle graze within forest but drink outside. If the grazing area were removed far from the villages, the difficulty of watering will be very great indeed. In fact, the measure is likely

to be very unpopular with the people who have so far helped us in the successful management of these forests. (4) It will not be an easy matter for the Forest Department to protect from fire areas continually closed against grazing for ten years. I think there should be no alteration in the existing practice of allowing grazing all over the area at one and the same time.

Fuel-cutting.—At present wood is cut for fuel in five different places. Mr. Coventry also proposes the following reserves for coppice treatment, *viz.*,—

(1) Taragarh Valley.
(2) Chang Gate Bir and Dilwara Bir.
(3) Sheopura and Anspahar.

Hitherto a certain number of acres has been annually cut and sold standing by auction at so many rupees per acre, or so much per camel load, &c. In future a much larger area will be cut, and a rotation of 20 years has been prescribed in each case. The cutting of larger areas will, however, be deferred till the local demand for wood rises. The selection of reserves for coppice is well planned in my opinion.

In conclusion, I am to state that all the suggestions of Mr. Coventry may be accepted with one exception, *viz.*, the division of certain forest reserves for the purpose of grazing into two portions, each portion to be closed in rotation for ten years. This point would require your serious consideration.

Please the Secretary
Sir,
Your most obedient Servant
(Sd) Hira Singh
Supt. of Lands & Forests
Bharatpur, Agency

No. 153-W.P.

FROM

B. RIBBENTROP, Esq., C.I.E.,

Inspector General of Forests to the Government of India,

To

THE SECRETARY TO THE CHIEF COMMISSIONER, AJMERE,

PUBLIC WORKS DEPARTMENT.

Simla, the 20th September, 1893.

ORKING
LANS.)

Sir,

I HAVE the honour to submit, for your consideration and orders, the Working-Plan for the Ajmere-Merwara reserved forests, forwarded to me under cover of the Officiating Commissioner's letter No. 133,* dated 17th August last.

*Copy enclosed.

2. I approve of the proposals for the exploitation of fuel in the Fuel Circle. The details of the scheme (paragraphs 115 to 120) contain some errors which however, are of no material importance. As regards the three areas in this Circle at present assigned to free grazing, I consider that the blocks should be opened only for a certain number of months after the rainy season, and that the number of cattle to be admitted over the total area of 1,186 acres should not exceed 400. From paragraph 52 of the Report it would appear as if the concession to graze cattle in these blocks were regarded as the exercise of a right although grazing as of right does not exist under the Regulations of 1874. No reason has been given why the areas burdened with this concession need be confined to forest which once formed part of the village grazing land; and it will probably be found expedient to alternate them, as is proposed in the case of the "open area" in the Sheopura forest.

3. I also approve of the proposals as regards the Grazing Circle, and consider that the scheme of management suggested is likely to result in a greater improvement of the forest growth, including grass, than could take place under existing arrangements. But I attach special importance to the alternation of the areas assigned for free grazing and to the limitation of grazing, whether free or under permit, both as regards maximum number of cattle to be admitted and season of admission.

4. Though, however, I approve of the main principles on which the plan has been constructed, I am constrained to say that its arrangement is somewhat confused. I also think it would be preferable to substitute local names for the denominations 'Fuel' and "Grazing" Circles, especially as grazing is to take place in some parts of the Fuel Circle and fuel operations in the Grazing Circle. I consider it objectionable that the name of a circle should have any reference to the manner of treatment, as this usually leads to misconception. In the present instance, it should be the aim of the Administration to utilize as far as possible the fodder resources of the country by grass-cutting rather than by the grazing of cattle.

5. I take the present opportunity of recording my doubt as to the wisdom of opening all the reserves to grazing during a portion of each of the five years ending with 1891-92. For it can scarcely be questioned that, by this policy, the greatest quantity of fodder combined with the least injury to the forests was not secured.

I have the honour to be,

SIR,

Your most obedient Servant,

(Sd.) B. RIBBENTROP,

Inspector General of Forests.

No. 30 F. of 1894.

From, The Commissioner of Ajmere-Merwara

To

THE SECRETARY TO THE
CHIEF COMMISSIONER,

Ajmere-Merwara, in the P. W: Deptt.

Dated Ajmere, 16th May, 1894.

Sir,

The arrangements proposed in the draft Working-Plan prepared by Mr. E. M. Coventry for the Ajmere-Merwara Forests, (copies of which were received with your endorsement, No. 2919 S., dated 5th October, 1893,) are under consideration. But as there will inevitably be delay before the Working-Plan is finally sanctioned, and as it is necessary that the question of Grazing in the Forests, which is the most important of the subjects dealt with in the Working-Plan, should be settled at once, I have the honor to address you on this point in continuation of the correspondence ending with your letter No. 837 S., dated 26th March, 1892.

2. In this letter No. 26 F., dated 30th April, 1891, Colonel Biddulph, then Commissioner of Ajmere, discussed the whole subject at length, summarizing his views in the concluding paragraph with the recommendation that, except in such Reserves or portions of Reserves as are set apart for Timber or Fuel, grazing should be permitted every year in all Reserves without any restriction except in regard to the number of cattle admitted to each Reserve,

3. In your letter No. 1227 S., dated 13th June, 1891, to the Government of India, you expressed the opinion that this concession should only be granted to a limited extent, and that "Grazing should be allowed only in years of scarcity, or when the Forest Officer and Commissioner are of opinion that it is not likely to injure the supply of future years."

In the sixth paragraph of the same letter Government were invited to issue instructions on the working principles to be observed in future.

4. Apparently no definite orders were issued in response to this appeal, but the subject was discussed in letter No. 279 F., dated 24th February, 1892, from the Government of India, to your address, in which the Annual Forest Report of Ajmere-Merwara for 1890-91, was reviewed. The Government accepted the proposal that the Reserves devoted more particularly to fodder purposes should be thrown open to grazing in years of marked scarcity after the best grass had been cut; but they rejected Colonel Biddulph's recommendation that grazing should be permitted every year in such Reserves. In* forwarding a copy of the correspondence, you desired that in future sanction should be obtained if in a year of marked scarcity it is proposed to relax the Rules hitherto laid down for opening Reserves for grazing. On this point I would note that, so far as I can ascertain, no definite Rules have ever been issued to regulate grazing in the Ajmere-Merwara Forests. There has however been an understanding on the subject; and

* No. 837 S., dated 26th March, 1892.

the concession has been granted so habitually in practice that, with regard to some Forests at least, the cultivators have learned to consider it as a right.

5. With your letter No. 3481 S., dated 2nd November, 1892, you forwarded to Government a preliminary report submitted by the Extra-Assistant Conservator of Forests, with a view to the preparation of a Regular Working-Plan for the Ajmere-Merwara Forests. In his answer No. 22, dated 8th February, 1893, the Inspector-General of Forests wrote that the "forests which it is intended shall remain open to annual grazing must be subjected to a treatment different from those in which grazing is to be allowed in times of scarcity only." He proceeded to emphasize the importance of "separating these two classes of Forests," thus showing that he is prepared to assent to the principle that in certain Government Forests in Ajmere-Merwara grazing may be allowed every year.

6. Early in 1893, Mr. Coventry, Assistant Conservator of Forests in Berar, was specially deputed to draw up the Working-Plan for Ajmere-Merwara. Before drafting it, he made a careful inspection of nearly all the Reserves, and then submitted a preliminary letter dated 18th March 1893, in which he embodied his views based on the experience so gained. He alluded to the Inspector-General's communication quoted in the preceding paragraph, and expressed the opinion that grazing should be altogether excluded from the Forests in the Ajmere District "except

in years of great scarcity." As regards the Beawar Tahsil of the Merwara District, he considered that "Grazing might be allowed in the Beliawas Reserve, and apparently in the Kotra Reserve, as hitherto," that is, every year. In the other tahsil, Todgarh, he was of opinion that grazing might be allowed in all of the four Reserves* every year. But one-half of each Forest should, he thought, be opened for ten years, and then closed altogether, the second half being opened for the next ten years. The closed half should only be opened to grazing as well as the other half in times of great scarcity.

Todgarh.
Dewair.
Beliawas.
Amner.
Banjari-Mandla.

7. These proposals may be summarized as follows :—

(1) No grazing should be allowed in the nine Ajmere Forests except in years of great scarcity.*

(2) The same as regards the 11 Forests in the Beawar Tahsil of Merwara District except

a.—Beliawas.

b.—Kotra.

(3) All the four Reserves* in the Todgurh Tahsil of Merwara should be open for grazing every year, but only one-half the area of each Reserve should be open for 10 years, the second half being closed for that period and then opened for a decade while the first half was closed.

(4) That the entire area of all these four Reserves should be opened in times of great scarcity.

* NOTE.—Presumably Mr. Coventry intended to make an exception in favour of the two Ajmere Reserves of Srinagar and Rajgarh, and of the Sheopura and Banjari-Mandla Reserves in the Merwara District in part of which Reserves free grazing has been allowed under the Settlement Record ever since they were taken up.

* (1) Amner.
(2) Banjari-Mandla.
(3) Todgarh.
(4) Dewair.

8. The Extra Assistant Conservator of Forests was consulted on the subject, and agreed* generally in Mr. Coventry's recommendations. He pointed out that Mr. Coventry's proposals added only two† Reserves, *viz*, Amner and Banjari-Mandla, to the three in which annual Grazing always had been allowed in practice, namely, Todgurh, Dewair, and Beliawas. But he differed on two points :—

(1) He would either restrict the number of cattle admitted to Amner and Banjari-Mandla to what the areas can support, or would restrict the Grazing period from four months to two months.

(2) He showed (on which point indeed there can be no sort of doubt) that the 10 years rotation scheme could not work in practice ; and considered "that there should be no alteration in the existing practice of allowing Grazing all over the area (of the open ‡ Reserves) at one and the same time."

He further expressed the opinion that if the remaining 19 Ajmere and Beawar Forests are closed to Grazing except in famine years, the period of cutting grass, (*viz.*, six weeks in Ajmere and four months in Merwara) should be extended, to avoid undue hardship to the villagers.

9. Meantime Mr. Coventry completed his draft Working-Plan, and forwarded it with his letter —— dated the 20th April, 1893. In this Working-Plan he somewhat modified the proposals made in his prelimi-

* No. 25, dated 20th April, 1893.

† Three, if Mr. Coventry intended to include Kotra.

‡ Todgarh.
Dewair.
Beliawas.
Benjari Mandla.
Amner.

nary Report of the 18th March, 1893, abstracted in paragraphs six and seven above, and the result of his final recommendations as contained in pages 39 and 53 of his Report, may be noted beneath to facilitate reference.

(1) He divides all the 24 Forests in Ajmere-Merwara, into two circles, *viz.*, A. Fuel circle of 30,483 acres, B. Grazing circle 59,297 acres.

In the Fuel circle he includes 19 of the 24 Reserves. In the Grazing circle he places the remaining five Reserves, *viz.*, Beliawas, Amner, Banjari-Mandla, Todgarh and Dewair. Thus he excludes the Kotra Reserve.

(2) He proposes to allow no Grazing in the Fuel * circle, and suggests certain fixed periods for which the several sections or sub-divisions of the five Reserves in the Grazing circle should be opened or closed to Grazing, the scheme being based on an arrangement whereby each part of each Reserve should have a rest of ten years, except the Todgarh Reserve whereof (on account of its relatively large area) each subdivision should have a rest of 20 years.

(3) All right-holders in the closed portions will be allowed to graze in the open portions.

(4) Right-holders in one Reserve will not be allowed to graze in another Reserve.

* Always excepting, it is understood, the open portions of the four Reserves, of Srinagar, Rajgarh, Sheopura and Banjari-Mandla referred to in para. seven above.

(5) The number of cattle should be restricted to one head for every three acres a year. But Mr. Coventry expresses the opinion that "it will not be practicable to make any limitations in this respect."

10. A copy of this Working-Plan, together with a copy of the preliminary correspondence already quoted, was then forwarded* to the Inspector General of Forests, in accordance with the rules, for opinion and remarks. In returning* it to you for consideration, the Inspector General expressed the following opinion :—

office No. 133 F, dated 17th August, 1893.

153, dated 20th September, 1893.

A. As regards the Fuel Circle.

1st. That the portion of the three Reserves in the Fuel Circle in which free grazing is at *present allowed should be opened for grazing only for a certain number of months every year after the rainy season, and that the number of cattle to be admitted to the 1,186 acres comprised in them should not exceed 400.

2nd. That the areas in which grazing is permitted should not be the same each year.

"B. As regards the Grazing Circle.

He expressed general approval of Mr. Coventry's proposals, but he considered :—

(1) That in these Reserves as well as in the Fuel Reserves the areas open to free grazing from year to year should be varied.

*PRESENT PRACTICE.

	Entire area	Open to grazing	No of Cattle.	Period.
ath	2,109	309	330	1st February to 30th June.
gar	3,629	817	not fixed	1st November " " June.
ore	2,747	60	20	Whole year.
	8,569	1,186		

ner.
iawas.
ajari-Mandla.
lgath.
Nair.

(2) That the grazing season, whether free or under permit, should be further limited.

(3) that the number of cattle admitted should be further restricted.

He does not express any definite opinion as to the limitations or restrictions to be imposed ; but generally emphasizes the importance of grass cutting as compared with grazing.

11. The observations of the Extra Assistant Conservator were again invited, and in a careful report, he [o]explains how free grazing concessions came to be given in the Fuel Circle. He then expresses the opinion that it would be neither just nor necessary to reduce simultaneously both the length of grazing time and the number of cattle at present allowed in the Grazing areas of this circle, namely Rajgarh, Srinagar, and Sheopura. His proposals which are moderate and carefully worked out, are summarized beneath :—

[o] No. 194 dated 10th January, 1894, copy enclosed.

	Acres.	Cattle.	Grazing period.	
(1) Rajgarh	...309	330	4 months	At any time after the rainy season before the next rains commence.
(2) Srinagar	...817	850	4 „	
(3) Sheopura...	60	20	12 „	
	1,186	1,200		

Although free grazing, as pointed out in paragraph seven above, has been allowed also over a considerable portion of the Banjari-Mandla Reserve, it is omitted from consideration in this connection, as this Reserve is really a Grazing Reserve, not a Fuel Reserve, like the other three, and is comparatively remote from any market.

12. As regards the Reserves both in the Grazing Circle and also the Fuel Circle, the Extra-Assistant Conservator explains why Grazing rights are restricted in practice, as a rule, though not invariably, to those areas which formed part of the respective village grazing lands before the Reserves were formed,—a point on which the Inspector-General had expressed doubt.

13. He then proceeds to discuss Mr. Coventry's proposed rotation of Sub-divisions of the Reserves composing the Grazing Circle. He points out that the very limited areas assigned to free grazing in those Reserves are either—

(1) Those in which grazing is allowed all the year round; or,

(2) Those in which it is allowed for a limited period each year.

As regards the first class, he considers the alternation proposed in the Working-Plan is necessary and desirable. But in the case of the latter in which grazing is allowed only for a short time after the rainy season, he thinks no alternation or sub-division is necessary, provided that the number of cattle admitted is limited to the scale of one head of cattle to three acres of forest a year, or one head per acre for four months. Thus in the Amner Reserve of 199 acres only, the Record of Right allows an undefined number of cattle to graze for about six months, *viz.* from the 15th December to the beginning of the rains (about 15th June). He would restrict the admissions to 200 cattle for four months,

14. Finally, he again emphasizes the impossibility of working in practice the 10 years rotation scheme, and advocates the continuance of the existing system by which grazing is allowed every year for four months in all the five * Reserves in the Grazing Circle, subject only to the limit of one head for acre. He expresses inability to suggest suitable local names in place of the names "Fuel" and "Grazing" Circles, to which the Inspector-General took exception in his letter No. 153 dated 20th September 1893.

* Todgarh
Dewair
Banjari Mandla.
Amner,
Biliawas.

15. The Assistant Commissioner of Ajmere concurs with the Extra-Assistant Conservator's views, except that he would reduce the number of cattle in the Srinagar Reserve from 850 (Extra-Assistant Conservator's suggestion) to 817 which is the exact number of acres in which grazing is allowed.

16. The Assistant Commissioner of Merwara makes some useful criticisms on points of detail. A copy of his report No. 110, dated 24th April 1894, is enclosed. His remarks have been considered in framing the draft rules annexed. If it is important to dispense with the obnoxious designation of "Grazing" Circle—a term apparently regarded as prejudicial in the Forest Department, I would suggest for the two circles, the names of Shamali (Northern) for the Fuel Circle, and Janubi (Southern) for the Grazing Circle. These terms follow with sufficient accuracy the geographical disposition of the Reserves respectively.

17. In the 7th paragraph of Mr. Coventry's Working-Plan he proposes to double the grazing fees which now stand as under :—

	As.	As.
Right holders	2 per cow,	4 per buffalo.
Others ...	4 „	8 „ „

The rates at present levied are no doubt low, but the increase would in my opinion create much discontent, and it would be advisable to leave them unchanged, more particularly as no strong grounds have been shown for enhancing them.

18. The correspondence reviewed in the preceding paragraphs as well as the completion of the Draft Working-Plan, and the constant petitions which are presented to the District officers on the subject of grazing, make it desirable to formulate for future guidance rules more definite than any which have hitherto obtained, and at the same time as elastic as circumstances will allow. The fact, to which the Inspector-General alludes in the fifth paragraph of his letter No. 153, dated the 20th September 1893, that owing to the liberal concessions granted during the five years ending with 1891-2 in each of which all the Reserves were open to grazing, the people have become habituated to grazing their cattle in the Reserves, shows the necessity of caution in introducing any fresh restrictions or re-imposing regulations which have been relaxed of late years. The mere rumour that it was intended to close a part of the Reserves for 10 years created consternation

in parts of Merwara. The table beneath shows how liberal the concessions have been since 1884–5 inclusive.

Year.	*Reserves open for Grazing*	*No. of cattle admitted*
1884-85	All the Reserves	13,086
1885-86	Todgarh, Dewair and Beliawas ...	6,268
1886-87	Todgarh, Dewair, Beliawas, Kotra, Anspahar	7,589
1887-88	All the Reserves, ...	36,259
1888-89	,, ...	16,202
1889-90	,, ...	14,634
1890-91	,, ...	26,350
1891-92	,, ...	47,989

19. The Draft Rules attached have been prepared in consultation with the Extra-Assistant Conservator of Forests on the basis of past practice, and on the lines indicated in the papers now reviewed. No large changes are proposed. The most important suggestion is the addition of the Amner and Banjari-Mandla Reserves to those of Todgarh, Dewair, and Beliawas for annual grazing. In some cases the period during which grazing is allowed has been extended, when this could be done without injury to the Forest, and in others the number of privileged cattle has been reduced where it seemed excessive.

20. It is not proposed at this stage in the Forest history of Ajmere-Merwara, that these Rules should be regarded as final. They are presented as affording a suitable working basis for the next few years, subject even within that period to modification as circumstances may demand. On this understanding I have the honour to recommend their acceptance and tentative introduction.

I have the honor to be,

Sir,

Your most obedient servant,

(Sd.) A. H T. MARTINDALE,

Commissioner of Ajmere-Merwara.

From

THE EXTRA-ASSISTANT CONSERVATOR OF FORESTS,

AJMERE-MERWARA,

To

THE COMMISSIONER AND CONSERVATOR OF FORESTS,

AJMERE-MERWARA.

No. 194, *dated* 10*th January*, 1894.

I have the honor to acknowledge receipt of your endorsement No. 185 F. dated 30th October 1893, and subsequent reminders, asking my opinion on the suggestions made by the Inspector General of Forests on the Working-Plans of this division, and in reply to explain as follow :—

Free Grazing in Fuel Circle.

2. The 3 areas assigned to free grazing in the Fuel Circle are :—

	Forest	Acres.	No. of cattle.	No. of grazing Months.		No. of villages entitle to grazing.
Ajmere.	Rajgarh	309	330	5 from 1st February.	to 30th June.	Mayapur-Naharpur.
	Srinagar	817	not fixed	8 from 1st November		Kothaj-Srinagar.
	Merwara-Sheopura	60	20	12 All year round.		Jaita-ka-baria.
	Total	1,186				

These grazing concessions are practically rights which the villagers have enjoyed for the past 20 years, the reason why they were granted being that either the whole (as in Sheopura) or a greater portion (as in Srinagar and Rajgarh) of the waste lands of these villages were included in the forest. Regarding Srinagar grazing, please see paras. 162-165 of the Forest Administration Report for 1876-77.

The Inspector-General of Forests considers that under the existing arrangements, the grazing in the blocks above mentioned is excessive and requires therefore to be regulated. With this view he suggests: (1) that grazing should be allowed for a certain number of months after the rainy season, which in other words means for a shorter time than at present permitted, (2) that the number of cattle for 1186 acres should not exceed 400. This gives an acreage of 3 acres per head.

I do not think it would be fair or convenient to the villagers concerned if for the purposes of the Working-Plan both the length of the grazing time and the number of cattle were reduced. Nay, such a measure would be very unpopular with the people. What is actually wanted is a regulation of the grazing rights compatible with the sound maintenance of the forests.

The length of grazing time is universally proportioned to the number of cattle which a given area can support. In the Record of Forest Rights Mr. Whiteway assumes that 3 acres of good grazing should suffice for one head of cattle for 12 months or one acre for 4 months. In the light of this assumption free grazing in the 3 cases above mentioned would appear to be far in excess of the capabilities of the forest. The object sought, viz. regulation of grazing, can therefore as well be attained by curtailing the length of grazing time without interfering with the number of cattle.

To take up each case separately :—

1. *Rajgarh.* 330 cattle can be safely allowed to graze within 309 acres for 4 months.

2. *Srinagar.* The number of cattle should be first determined. It was neither fixed at the time the forest was taken up in 1876 as would appear from paras. 17 and 97 of Sir D. Brandis's suggestions regarding forest administration in Ajmere-Merwara nor ascertained by Mr. Whiteway when the Record of Forest Rights was framed. The villagers can therefore graze any number of cows, bullocks and buffaloes as they may have. This of course cannot be permitted, for, if more cattle are admitted than the area (817 acres) can support, it is evident that the forest will suffer. Last year 711 cows, 133 buffaloes or in all 844 cattle were admitted. This number is liable to be further increased. To prevent overgrazing the number should be fixed either at 850, or the average of last 12 years may be taken from the Patwaris Enumeration Records.

Now supposing the number of cattle fixed at 850 and the area available for grazing being 817 acres, grazing cannot be safely allowed for a longer period than 4 months on the old assumption that 3 acres of grazing land would do for one head of cattle for 12 months or one acre for 4 months.

3. *Sheopura.* Jaita-ka-baria which is a hamlet consisting of 2 houses is situated in the heart of the forest and has no grazing lands of its own. Like other hamlets in Todgarh and elsewhere similarly situated, grazing must be allowed all round the year and the number of cattle as well as the area assigned for grazing may stand as at present.

If these proposals be adopted, the 3 areas will respectively stand as under :—

	Acres.	Cattle.	Months.	
Rajgarh	309	330	4	Either immediately after the close of the rainy season or any time before the commencement of the next rains.
Srinagar	817	850	4	
Sheopura	60	20	12	

The Inspector-General of Forests desires to know "why the areas burdened with the concession (free grazing) need be confined to forest which once formed part of the village grazing land."

Grazing within village boundaries is the old custom of the country which the Settlement has also recognised and which the Government is bound to respect, though virtually it is the proprietor of these forests. There are however cases where grazing is interchangeable (*i. e.*) the cattle of one village graze on the adjoining lands of another village and *vice versa*. Forest Bye-Law XI (*c*) lays down that "grazing for the animals admitted to the forests, shall, as far as possible be allowed within forest limits."

Evidently I think this alsoimplies that grazing shall be confined to village forest limits as far as it can be helped. If the prevailing custom were not observed intact, there will be much discontent among the villagers concerned, who would regard it as an unjust encroachment on their rights although grazing is not a right under the regulation, and frequent disputes would probably arise. Unrestricted grazing to one village will also interfere with the due exercise of grass cutting rights enjoyed by another village.

The areas assigned to free grazing in the two circles are either: (1) Those in which cattle graze all the year round, or (2) those in which grazing is allowed for a shorter time only. In the former case, under the effects of continuous 12 months' grazing over the same area, it is evident that the forests will go on deteriorating. The formation of these blocks as proposed in the Working-Plan is therefore a nice arrangement. But in the second case there is hardly any necessity for such a provision, as grazing lasts for a short time, only after the rainy season, and practically no harm will be done to the forest if the number of cattle be limited to what the area can support.

In Amner the number of cattle should be fixed as in the case of Srinagar Reserve, the area available for grazing being 199 acres. This area is incapable of supporting more than 200 cattle for 4 months. The time prescribed under the Record of Forest Rights is 15th December to the beginning of next rains,

which is about six months, and 344 cattle (Amner 177, Ajeitgarh 167) have been admitted during the current year. Thus it will be seen that both the season of grazing and the number of cattle will require to be regulated.

The formation of blocks with 10 years rotation in the grazing circle for purposes of grazing under permit is apparently a prudent way of insuring against a future fodder famine, but in practice it amounts to, in ordinary years, giving grazing to some and excluding other villages.

When our experience of the past famine has shown that villagers very seldom availed themselves of the relief works provided for them at a distance from their houses, it can be imagined that in ordinary years they will hardly take their cattle for grazing to a distance which is quite prohibitive. Again, if the cattle of one village will graze (in ordinary years, though an exception can be made in famine times) in the forest limits of another village far away, it will give rise to frequent disputes among villagers. I propose that grazing may be allowed in accordance with the past practice annually for 4 months, in all the 5 reserves in the grazing circle, subject to the maximum number of cattle which they can respectively support.

If the rains fail, the cattle of Banjari-Mandlan, and Amner may be allowed to graze in Todgarh, Dewair, and Beliawas, as the 3 latter Reserves are extensive enough to admit of this heavy grazing even for 2 years continually.

I regret I am unable to suggest appropriate local names for the denominations "Fuel and Grazing Circles."

From K. D. Erskine Esquire,
ASSISTANT COMMISSIONER,
MERWARA.

To

THE COMMISSIONER,
AJMERE-MERWARA.

No. D.C. / 110, dated 24th April, 1894.

I have the honor to acknowledge receipt of your letter No. F. dated the 18th instant, forwarding copy of a Draft Working-Plan by Mr. E. M. Coventry for the Ajmere-Merwara Forests, together with a copy of certain correspondence on the subject, and beg to offer the following remarks:—

2. Part I is headed "Summary of facts on which the proposals are based." There are a few unimportant mistakes in this which it is unnecessary for me to notice. I agree with the remarks in para. 40 that the lists of right-holders in this district should be revised annually. The custom of submitting these lists through the Assistant Commissioner has not been observed of late but will be revised under the orders issued by you a few days ago.

In para. 71 Mr. Coventry suggests that the fees charged for the last 5 years to right-holders and others for the privilege of grazing their cattle from the 1st March to the beginning of the rains be doubled. The fees now charged are not exorbitant, nor would they be excessive, if doubled as proposed. Anything in the shape of novelty or change is distasteful to the villagers, moreover they say that they have grazed in Todgarh, Dewair and Beliawas since 1882, and, as remarked by Mr. Coventry "look upon the forests as their own property which the Government is merely managing on their behalf;" on the other hand, it must not be forgotten that grazing, except in a few individual cases which will be noticed later on, is not a right, and that our forests were not started merely to supply these villagers with grass and grazing. An increase in the annual receipts of the Forest Department is moreover necessary to enable it to give effect to the many improvements advocated by Mr. Coventry, such as construction of boundaries, fences, inspection paths, etc.

3. As regards Part II. of the Working-Plan, it is, I think, only necessary for me to discuss the proposal to divide the reserves in this district into 2 circles "Fuel" and "Grazing." In so doing I can take up the more important questions of grass cutting and grazing. In both these circles the cutting of grass and wood will be allowed as heretofore and the only difference between them is that whereas in the former no grazing will be allowed except in years of great scarcity, in portions of the latter grazing will be allowed from the 1st March to the beginning of the rains on payment of the prescribed fees which, as I have mentioned above, it is proposed to raise.

4. The "Fuel Circle" in this district consists of 10 distinct tracts, as mentioned in the tabular statement at para. 99 of the Working-Plan. We need consider no further the 4 small reserves, Dilwara bir, Chang Gate bir, Jalia and Balad. As they are the exclusive property of Government, and no villagers have any rights in them, this leaves 6 reserves to be considered, viz. Chang, Barwar, Kotra, Siliberri, Sheopura and Anspahar. I have no remarks to make regarding the proposals as to cutting of wood and grass. From para. 72 of the Working-Plan, I notice that all these reserves have been opened to grazing since the year 1887-88, and 2 of them, Kotra and Anspahar, since the previous year. I am not aware that it can be strictly said that each year since 1887-88 has been one of scarcity, but the fact remains that the right-holders and others have come to consider it a settled thing that they will be allowed to graze in these reserves as usual, and some of them deem it as their right. It is proposed in para. 110 that no grazing should in future be allowed in any of these 6 reserves except in time of great scarcity, [an exception has been made in para. 122 with regard to 60 acres in the Sheopura tract in which 20 cattle belonging to the hamlet of Jaita will be allowed to graze all the year round. This is quite correct; the hamlet lies in the forest, and the old Record of Rights contained an entry to the effect that this hamlet was allowed to graze 20 head of cattle all the year round within forest limits free of dues. A similar entry is being made in the revised record with the addition that the area, 60 acres, is defined.] But I am not quite sure that Mr. Coventry did not mean to make an exception in the case of the Kotra block. In para. 4 of his letter of the 18th March 1893 to your address (copy printed at end of the Working-Plan) speaking of Ajmere forests he says that, "Grazing should be altogether excluded except in years of great scarcity." Then, turning to Merwara, he says that "the same remarks apply to the forests in the Beawar Tehsil with the exception of the Beljawas and Kotra blocks." He goes on to say that "in Beliawas grazing might be allowed as has been done hitherto," while Kotra "might be treated as a fodder reserve." The

opening sentence would show that he intended that Kotra might be opened to grazing in ordinary years like Beliawas, but the concluding sentence does not altogether support this idea. The Forest Officer in his letter to you, No. 25, dated 20th April 1893, seems to have concluded that Mr. Coventry's intention was to exclude grazing in the Kotra tract except in famine years, but in my opinion the point is not quite clear.

To return to the proposal in para. 110 of the Working-Plan, I have already said that grazing has been allowed in these reserves since at least 1887-88, and that the villagers have come to look on it at any rate as a concession that will be made them annually. At the same time I am informed that none of these reserves have been opened to grazing during the current year, *i. e.* from the 1st March last, and the result has not been a large number of petitions from the villagers concerned. On the contrary, up to date I have received only two petitions on this subject, one from certain men of Sheopura and the other from Anspahar. Later on, when grazing becomes still more scarce, I may receive more complaints but at present I cannot say that the closing of these tracts to grazing has caused anything more serious than disappointment. The policy of the Local Government and the Government of India is "to promote the cutting of grass and restrict grazing within the narrowest limits," and I think with this end in view, the proposal of the Working-Plan officer to close all these 6 reserves to grazing except in famine years is sound and should be sanctioned. If, however, the forest growth in Kotra is poor and grazing would not hurt it, I do not see why grazing should not be allowed there and the prescribed fees taken. This would increase the receipts of the department. On the other hand the Kotra people have not complained to me that they have been forbidden to graze.

5. I turn now to the "Grazing Circle" which consists of 5 district reserves; *viz.*, Beliawas, Amner, Banjari-Mandlan, Todgarh and Dewair. My remarks will be confined to the question of grazing, as the proposals regarding cutting of wood and grass are the same as in the "Fuel Circle" and seem suitable.

Certain hamlets situate within forest limits in Beliawas, Amner, Banjari-Mandlan and Todgarh are allowed to graze their cattle all the year round free of dues within a certain tract which has been marked off. The area of these tracts is defined in the Record of Rights, and in all the cases, except that of Amner, the number of cattle and names of the owners have been entered in the revised record. The case of Amner has been mentioned by

the Extra-Assistant Conservator towards the end of his letter No. 194, dated the 10th January last, and I am in correspondence with him on the subject. The matter seems to be one suitable for discussion when considering the Revised Record of Rights which I hope to submit to you very shortly.

In para. 135 Mr. Coventry proposes that grazing be allowed "in rotation over the whole of these 5 reserves from the 1st March to the beginning of the rains on payment of the prescribed fees." He would divide these reserves into certain areas in which grazing would be allowed alternately, *i. e.* for a certain number of years. One portion of the reserves would be opened and the rest closed to grazing. To this proposal the Inspector-General of Forests "attaches special importance" as well as "to the limitation of grazing both as regards maximum number of cattle to be admitted and season of admission." Mr Coventry's proposals regarding the division into areas of these reserves are to be found at paras. 135 and 140. He also recommends that in years of scarcity the whole reserve be thrown open to grazing.

Now of these 5 reserves, 3, viz., Beliawas, Todgarh and Dewair have been open to grazing since 1882-83, and the villagers have freely availed themselves of this concession. Under the proposed arrangements, a certain portion of these reserves is to be closed and a certain portion opened to grazing for 10 years alternately, or in other words, the right-holders living in the neighbourhood of the closed portion are for the next 10 years, either to graze their cattle *outside* forest limits as best as they can, *i. e.* on village lands or they are to send their cattle to graze in the "open" portions of the forest in which they have rights (para 140) or they are to send their cattle right away to Meywar or Malwa to graze (a procedure to which they have hitherto only had recourse in years of great scarcity.) The objections to these proposals have been correctly given by Sirdar Hira Singh in his letter No. 25, dated 20th April 1893 to your address. There is one other objection which has been urged before me by the villagers themselves, and it is that, in a good many cases, the grazing of their cattle in the "open area" distant perhaps 4 or 5 miles from their village would mean either that their cattle must be located there so as to be near the grazing, or a journey to and fro of 8 or 10 miles daily. In the former event they would lose all, and, in the latter event, a great deal of the manure of the animals which is extensively employed by them in improving the soil of their fields. When at Barakhan, a village on the borders of the Todgarh reserve, the other day I received a long petition from the lumberdars of certain villages. Their villages lay close to what would, under the proposals in the Working-Plan, be the area closed for the next ten years. They had been told that this area

was going to be closed from the 1st March of the current year, and that, if they wanted grazing, they must go to the open areas which were a considerable distance off. These lumberdars used much the same arguments as those put forward by the Extra-Assistant Conservator, and it was a relief to them to be told that the orders they had received were premature and that for the present they would be allowed to graze as heretofore.

These 3 reserves, *viz.*, Beliawas, Todgarh and Dewair, are said to be able to stand a great deal of grazing; they have been opened to grazing since 1882; they are too far from the markets to be profitably worked for fuel at present, and the proposals of Mr. Coventry, though they would undoubtedly improve the forests, would in my opinion, if sanctioned, cause considerable discontent among and hardship to the villagers concerned. For these reasons, I think, with the Forest Officer, that there should be no alteration in the existing practice of allowing grazing over the whole of these 3 reserves at one and the same time. I understand that, in accordance with the custom since 1882, these reserves were opened to grazing on the 1st March last.

The reserves of Amner and Banjari-Mandlan are on a different footing. As regards *custom*, they are precisely the same as the 6 reserves mentioned by me in the beginning of para. 4 supra, *i. e.* grazing has been allowed in them since the year 1887-88. Mr. Coventry has put them into the "Grazing Circle" because they are at some distance from Beawar and because "the crop in them is not yet grown up," as in the case of Beliawas, Todgarh and Dewair, he has proposed that they be divided into 2 areas, to be grazed over alternately. These areas are—

Amner 1st area 2,600 acres. „ 2nd „ 1,514 acres.	Total 4,114 of which 26 are under cultivation and 199 are set apart for the exclusive grazing for 6 months of cattle belonging to Amner and Akhaijitgarh.
Banjari-Mandlan 1st area 1,993 acres. „ „ 2nd area 2,738 acres.	Total 4,731 acres of which 110 are under cultivation and 200 acres are set apart for the exclusive grazing all the year round of cattle belonging to Beria-ka-chowra.

I cannot find from the annual reports the number of cattle that have been grazing in these 2 reserves of late years but notice that the Forest Officer says in his letter of the 20th April 1893 (to which I have already referred) that "the

area is small in comparison with the number of cattle owned by the villagers," and that "the acreage per head is low." It follows, therefore, that if the reserves be divided into two areas as proposed by Mr. Coventry, the acreage per head will be still lower. I am of opinion that if grazing is to be allowed at all in these reserves (and I see no objection as they are too far from the markets to be profitably worked for fuel and the fees that will be charged will increase the receipts of the Forest Department) it should be allowed throughout for 4 months in the year subject to the maximum number of cattle the reserves can respectively support. In years of scarcity the cattle of these 2 reserves, might be allowed to graze in Todgarh, Dewair and Beliawas which are said to be sufficiently extensive to stand this.

6. In conclusion I beg to say that this correspondence seems to show that the formation of village birs is very necessary. This is a matter to which Mr. Coventry has called attention in para. 19 of his report, and it seems to call for action on the part of the Forest Department. I will do my best to assist and to get the Tehsildars to assist. In the same way that it has been found necessary to close certain forests in the Beawar Tehsil to grazing, though they have been opened for the last 5 years, so, perhaps, a few years hence it will be considered necessary to close Amner or Banjari-Mandlan or even the others. The existence of grass birs would be profitable to the villagers and make them, at any rate, less dependent on our forests as regards grazing.

Chief Commissioner,
Ajmere-Merwara,
Public Works Department

DRAFT NOTIFICATION.

Mount Abu the 5th Nov. 1894

No. 3,046 S.— In exercise of the powers conferred by Section 9 of the Ajmere Forest Regulation VI of 1874, and in supersession of Bye-Law XI of the Forest Bye-Laws framed under that Section by the Chief Commissioner in his Notification No. 1505 S. dated 4th June 1875, the Chief Commissioner of Ajmere-Merwara is pleased to issue the following rules for the regulation of grazing in the State Forests of Ajmere-Merwara.

XI.—For the purposes of the Ajmere-Merwara Forests Working-Plan, the Reserved Forests of those Districts shall be divided into two Working Circles :—

	Area in Acres.
A.—Fuel Circle (19 Reserves) ...	29,821
B.—Grazing Circle (5 Reserves)	58,753
Total ...	88,574

2. The following Reserves are comprised in each Circle :—

Fuel Circle.

		Acres.
A.—Ajmere District.		
(1.)	Mohwa bir	1,836
(2.)	Madar Hill	851
(3.)	Makerwali Hokran ...	2,675
(4.)	Nag Pahar	2,479
(5.)	Taragarh Valley	1,203
(6.)	Srinagar	3,623
(7.)	Danta	1,429
(8.)	Rajosi	1,303
(9.)	Rajgarh	2,199
	Total Ajmere ...	17,598

Grazing Circle.

A.—Ajmere District.

Nil.

		Acres.
B.—Merwara District.		
(1.)	Beliawas	3,236
(2.)	Amner	4,088
(3.)	Banjari-Mandlan	4,621
(4.)	Todgarh	33,842
(5.)	Dewair	12,966
	Total ...	58,753

B.—Merwara District.

(10.)	Dilwara	232
(11.)	Chang Gate	49
(12.)	Jalia	37
(13.)	Balad	13
(14.)	Chang	2,918
(15.)	Borwar	2,401
(16.)	Kotra	1,726
(17.)	Siliberi	520
(18.)	Sheopura	2,747
(19.)	Anspahar	1,580
	Total Merwara ...	12,223
	GRAND TOTAL ...	29,821

NOTE.—There are no Grazing Reserves in Ajmere, though grazing is allowed in parts of certain Fuel Reserves in Ajmere (see Rule 5.)

3. Grazing is allowed, until further orders, in the reserves named above (1) on payment or (2) free, subject to the following rules :—

Grazing in the Fuel Circle.

ON PAYMENT

4. No grazing will be allowed *on payment* in any Reserve in the Fuel Circle in ordinary years. In years of scarcity, grazing on payment may be permitted with the previous sanction of the Chief Commissioner.

FREE.

5. The following rights of *Free Grazing* exist in this Circle :—

A.—Ajmere District.

(*a.*) In the *Srinagar* Forest Reserve the inhabitants of Srinagar village have the right to graze 817 cattle free over the defined area of 817 acres for four months, namely, from 1st March to the end of June or until the beginning of the rains.

NOTE.—(1.) The figures are based on the generally accepted scale by which one head of cattle is allowed for every three acres of land when grazing is permitted throughout the entire year. The grazing area is defined by a stone wall and by 54 boundary pillars, all serially numbered.

(2.)—The term *cattle* here and elsewhere excludes camels, sheep, and goats.

(3.)—The number of cattle, formerly not stated, has now been fixed. The period of grazing has been reduced by four months.

(*b.*) In the *Rajgarh* Reserve the inhabitants of Mayapur, Naharpura and Kothaj are entitled to graze 330 head of cattle in the following areas, which were originally taken up from those villages respectively, from 1st March to the beginning of the rains:—

	Area taken up from each village. Acres	No. of cattle entitled to graze.
Mayapur ...	106	140
Naharpura ...	93	90
Kothaj ...	110	100
Total ...	309	330*

*Explanation.—Here the number of cattle slightly exceeds the acreage. But as these figures were entered in the Register of Rights by the Settlement Officer, it has not been thought desirable to alter them. The period of grazing has been reduced by one month.

B.—Merwara District.

In the Sheopura reserve the inhabitants of Jaita-ka-baria (a hamlet of Athun situated within forest limits) are permitted to graze, throughout the year, 20 head of cattle, including calves over one year old. One area of 60 acres has now been marked off round the hamlet, and a second area of the same size will be marked off after a period of 10 years has expired.

Grazing in the Grazing Circle.

6. The five* forests situated in this circle will be opened for grazing, on payment, for the four months from the 1st March to the beginning of the rains every year.

ON PAYMENT.

* 1. Beliawas.
2. Amner.
3. Banjari-Mandlan.
4. Todgarh.
5. Dowair.

*NOTE.—From Mr. Coventry's reports it would appear that he was at first of opinion that annual grazing might be allowed in the Kotra reserve also, and the Assistant Commissioner inclines to this view. But no complaints of exclusion have yet been received, and for the present at least grazing may be prohibited in accordance with the views of the Extra-Assistant Conservator of Forests.

7. The following grazing rates will be charged :—

	Per Cow.	Per Buffaloe.
	annas	*annas.*
From non-right-holders, full rates	4	8
From *right-holders, half rates	2	4

*NOTE.—The names of the right-holders in each village are registered; they are the original proprietors. The number of the non-right-holders is not known.

8. The villages entered in the following table may graze their cattle *of right* in each reserve, as shewn below. The maximum number of cattle of each village which may graze is also entered. The rates are those given in Rule 7. The period of grazing is from the 1st March till the rains break ;—

Name of Reserve.	Names of villages.	*Area assigned to each village.	Maximum No. of cattle of each village to be admitted.
		Acres.	
BELIAWAS, Total area 3,236 acres.	(1)—Beliawas ...	1,383	1,383
	(2)—Souiana ...	464	464
	(3)—Rudhana ...	1,200	1,200
	(4)—Taragarh ...	111	111
	(5)—Dadola ...	78	78
		3,236	3,236
AMNER, Total area 4,088 acres.	(1)—Kukra ...	950	950
	(2)—Nal-Lalpura...	1,423	1,423
	(3)—Ghata ...	80	80
	(4)—Ajitgarh ...	481	481
	(5)—Amner ..	847	847
	(6)—Tibana ...	102	102
	(7)—Nadaot ..	101	101
	(8)—Dhoti ...	104	104
		4,088	4,088
BANJARI-MANDLAN, Total area 4,621 acres.	(1)—Todgarh * ...	462	462
	(2)—Berar ...	326	326
	(3)—Dauserian ...	903	903
	(4)—Mandlan ...	1,374	1,374
	(5)—Negarian ...	168	168
	(6)—Ranathan ...	108	108
	(7)—Banjari ...	950	950
	(8)—Mewasa ...	138	138
	(9)— Palri ...	119	119
	(10)—Balachaiat ...	38	38
	(Disputed) ...	35	
		4,621	4,586

*NOTE.—This is the area taken up from each village at the outset when the reserves were formed.

* Thok Kanab only.

A.—RIGHT-HOLDERS.

Name of Reserve.	Names of Villages.	Area assigned to each village.	Maximum No. of cattle of each village to be admitted.
TODGARH, Total area 33,842 acres.	(1)—Bagri ...	2,558	... 2,558
	(2)—Velpanna ...	2,978	... 2,978
	(3)—Sirman ...	2,704	... 2,704
	(4)—Khormal and Rampura ...	334	... 334
	(5)—Charpalan ...	1,443	... 1,443
	6)—Bamenhera ...	397	... 397
	(7)—Baghmal ..	8,537	... 8,537
	(8)—Satukhera ...	3,123	... 3,123
	(9)—Ganeshpura .	70	... 70
	(10)—Merian ...	2,367	... 2,367
	(11)—Baraswara ...	5,418	... 5,418
	(12)—Mandawar...	735	... 735
	(13)—Kachbali ...	2,322	... 2,322
	(14)—Pipli ...	438	... 438
	(Disputed area)	418	
		33,842	* 33,424

*NOTE.—The number of cattle belonging to each village is in some instances smaller than the figures entered, in others it is larger, but no objections will be raised provided that the total number of cattle sent by the villagers to graze does not exceed the total number of 33424 head allowed in the reserve.

B.—*NON-RIGHT-HOLDERS.

(15)—Kirana.
(16)—Pithakhera.
(17)—Rupnagar.
(18)—Barakhan.
(19)—Kakrod.
(20)—Asan.
(21)—Deolatan.
(22)—Barakhera.
(23)—Gogela.
(24)—Dholadanta.
(25)—Roriana.

*NOTE.—These villages have no original proprietary rights in the forest land. They own very few cattle, and are practically allowed to graze as many head as they please. They assist in putting out fires, and receive 1 ticket per house for cutting grass.

Name of reserve.	Names of villages.	Area assigned to each village.	Maximum No. of cattle of each village to be admitted.
		Acres.	
DEWAIR, Total area 12,066 acres.	(1)—Khemagudha ...	488	... 488
	(2)—Dabjar ...	302	... 302
	(3)—Antali ...	180	... 180
	(4)—Kaniana ...	501	... 501
	(5)—Motagudha ...	277	... 277
	(6)—Baghana	1,746	... 1,746
	(7)—Bhairagudha		
	(8)—Chaplian ...	5,108	... 5,108
	(9)—Dewair ...	2,703	... 2,703
	(10—Piprelu ...	1,607	... 1,607
	(11)—Khera Jessa ...	54	... 54
		12,966	1,2966

NOTE.—The three reserves in question are sufficiently extensive to allow of this concession. The number of cattle grazing in them at present is far short of the maximum number which can be safely admitted.

9. In years of scarcity, the cattle of the villages entitled to graze in the Amner and Banjari-Mandlan reserves (of which the area is limited) will be allowed to graze in any of the three other reserves,

viz. Beliawas, Todgarh and Dewair, subject to the maximum number of cattle noted above as admissible in each of those three reserves respectively.

10. In the Todgarh reserve all areas brought under fuel coppice shall be closed to grazing for a period of 10 years.

11. (*a.*)—*Free grazing for part of the year.*

FREE GRAZING.

(1.) In the Amner* reserve the inhabitants of Amner and Ajitgarh villages will be allowed to graze 200 cattle free over an area of 199 acres on the eastern slope of the range (which lies between the old boundary along the ridge and the line of the new boundary pillars along the base) for the period of four months from 1st November to 28th February.

	Area assigned to Grazing.	Number of Cattle.
	Acres.	
Amner ...	117	... 117
Ajitgarh ...	82	... 82
	199	199

* NOTE.—Up to the present time, 344 head of cattle, *viz.* Amner 177 and Ajitgarh 167, have been admitted into this limited area of 199 acres from December until the rains. The number, as well as the period were obviously in excess of the capacity of the area. They have accordingly been reduced, and the dates have been altered to avoid clashing with the period of *grazing on payment* which begins on 1st March. The respective number of cattle which each village may send is subject to reconsideration. The Record of Rights left both area and number of cattle undefined, and fixed the period from 15th December to the rains each year. If the present proposals press hardly on the people, they may require modification. But the recognition of annual grazing *on payment* is a substantial concession.

(2.)—In *the *Todgarh* reserve the inhabitants of Todgarh village (*thok malat* only) will be permitted to graze 85 head of cattle in an area of 85 acres known as the "Bijasar tract" from the 1st November to 28th February.

* This rule embodies a promise made when the Todgarh reserve was extended in 1890. The area called "Bijasar" has been ascertained as containing 85 acres. The reasons for dates and numbers are the same as those given above.

(*b.*)—*Free grazing during the whole year.*

Free grazing during the whole year will be allowed to the inhabitants of certain

hamlets situated within the following reserves :—

Name of Reserve.	Name of hamlet	(1) Number of persons entitled to graze	(1) Number of cattle.	(2) No. of acres assigned for grazing.
Beliawas ...	Motaila ...	4	42	126
Banjari-Mandlan.	Bari-ka-Chaura,	4	70	210
Todgarh ...	(1)—Jaspalan...	3	33	99
	(2)—Modia ...	18	320	960
	(3)—Alanjeryan	13	280	840
	(4)—Sarupan ...	12	150	450
	(5)—Boyankhet	2	10	30

1. * NOTE.—The figures entered in these columns are those given in the Settlement Record prepared by Mr. Whiteway.

2. * The figures in this column are based on the scale of one head of cattle to every three acres of land. The areas will now be marked.

The names of the persons thus privileged to graze their cattle during the whole year and the number of cattle allotted to each person, as shewn above, have been entered in the Record of Forest Rights.

12. The number of cattle admitted shall in no case exceed that allotted to each person. Calves less than 12 months old are not included in that number, that is, they will be admitted in excess.

13. An area equal to the acreage assigned for grazing in Rule 11 (*b*) above will be marked off round each hamlet named, and grazing will be restricted to that area for a period of 10 years. It will then be closed, and a second area of the same size will be thrown open for the next 10 years.

General Rules.

14. No grazing shall be allowed for a period of at least three years in any part of a forest where a fire has taken place.

15. The period during which grass-cutting is allowed will be extended as shewn below :—

	PRESENT RULE.	NEW RULE.
Ajmere ...	For six weeks from a date commencing seven days after the close of the Pushkar Fair. This date varies from year to year, but usually falls in the month of November.	For eight weeks from a date commencing seven days after the close of the Pushkar Fair.
Merwara...	Four months, *viz.* from 1st November to 1st March.	Four & half months. *viz.*, from 15th October to 28th February,

16. Grazing on payment will only be allowed under a Pass stating the number of cattle to be admitted, the rates charged, and the period of grazing. The colour of the Pass will be changed each year.

17. Application must be made to the Forest Officer by the Lumberdars or Patel of the village fifteen days before the date on which the grazing is required. The application must include a list of the cattle (cows and buffaloes being entered separately) for which a Pass is desired. Any cattle found grazing in excess of those specified in the Pass will be charged at double the original grazing rates.

18. The owners of cultivated lands within the boundaries of State Forests shall only be entitled to pass into forest limits, such cattle as are *bonâ fide* required for ploughing or other agricultural purposes.

RAJPUTANA AGENCY.

PUBLIC WORKS DEPARTMENT.

Dated Mount Abu, 15th June, 1894.

No. 1615 S.

From

THE SECRETARY TO THE CHIEF COMMISSIONER,
AJMERE AND MERWARA.

To

THE COMMISSIONER,
AJMERE AND MERWARA.

SIR,

I am directed by the Chief Commissioner of Ajmere-Merwara, to acknowledge the receipt of your letter No. 30 F. of 16th May 1894, forwarding for acceptance and tentative introduction Draft Rules for grazing in the Reserved Forests of Ajmere-Merwara.

2. In reply, I am desired to ask you to be so good as to frame for approval and publication in the *Gazette* Draft notification embodying the rules in question as Bye-Law XI. in substitution of the present Bye-Law XI. framed under section 9 of the Ajmere Forest Regulation 1874.

3. Colonel Trevor, I am desired to say, does not understand the objection taken by the Inspector-General of Forests to the terms "Fuel and Grazing Circles," which appear to him more appropriate than any other suggested and should therefore be retained.

I have the honor to be,
Sir,
Your most obedient servant,

(Sd.) H. F. White, M. I. C. E.,
Secretary to the Chief Commissioner, Ajmere-Merwara in the Public Works Department.

No. 150 F. of 1894.

From

THE COMMISSIONER,

AJMERE-MERWARA.

To

THE SECRETARY TO THE CHIEF COMMISSIONER

IN THE PUBLIC WORKS DEPARTMENT.

Dated Ajmere, 15th September, 1894.

SIR,

With reference to your endorsement No. 2919 S., dated 5th October 1893, and subsequent reminders, I have now the honour to address you on the subject of the Draft Working-Plan prepared by Mr. E. M. Coventry for the Ajmere-Merwara Forests.

2. The draft was completed in April 1893, and was forwarded in original to your office with my letter No. 44 F., dated 3rd May 1893. It was received back in this office in print with your letter No. $\frac{919\ S.}{C.}$ dated 19th July 1893, for submission to the Inspector-General of Forests. I sent it to the Inspector-General on the 17th August 1893 under Rule 88 of the Forest Department Code, together with a copy of the connected correspondence. The Inspector-General forwarded it to your office under cover of his letter No. 153, dated 20th September 1893, in which he made certain comments upon the fuel and grazing proposals, and it was returned to me for opinion regarding Mr. Ribbentrop's remarks with your endorsement cited above.

3. I anticipated that the consideration of the Working-Plan as a whole would involve protracted correspondence, and as the early settlement of the grazing rights of the people in both districts was specially important, that part of the plan which related to those rights was taken up first; after full consultation with the District Officers and the Extra-Assistant Conservator of Forests, I addressed you at length on this subject in my letter No. 30 F., dated 16th May 1894, in which Mr. Ribbentrop's criticisms received with your endorsement now under acknowledgment were also discussed(paragraph 10 *et seq.*)

4. At the same time, I forwarded draft rules for regulating grazing in future in the Ajmere-Merwara Forests. These modified in some respects the proposals in Mr. Coventry's Working-Plan. You expressed general approval of them in your letter No. 1615 S, dated 15th June 1894, and returned them to be thrown into the shape of a draft notification for publication under section 9 of the Ajmere Forest Regulation VI of 1878.

5. Since then, they have been again revised and printed to facilitate reference. They will be separately forwarded at an early date, but a copy (subject to final correction) is appended to complete the enclosures of this letter. They would have been returned earlier, but they were purposely retained for comparison, to avoid conflict with the draft revised Record of Rights in these Forests. This revision (Record of Rights) has occupied some years and has only recently been completed. The original was forwarded to you with my letter No. 35 F., dated 18th May 1894, and was returned, duly approved, with your letter No. 1713 S., dated 23rd June 1894, since then it has been necessary to print it, to avoid mistakes. The printing is nearly finished, and it will then be seen whether any modifications are required in the draft Grazing Rules to bring them into harmony with the Record of Rights, and with the draft Working-Plan now under consideration.

6. As soon as the draft Grazing Rules had received your general approval as noted above, I consulted the local officers as to whether there are any other points in the draft Working-Plan, apart from grazing and grass cutting, which require amendment. A copy of their replies* is enclosed. It will be seen that they have few suggestions to offer beyond those contained in the grazing correspondence which I forwarded with my letter No. 30 F., dated 16th May, 1894 (cited above) in which it was discussed in detail.

7. The Extra Assistant-Conservator of Forests points out that the quantity of fuel consumed in the towns of Ajmere and Beawar is largely underestimated in the draft Working-Plan, and that the prices of Forest Fuel must be reduced. This is no doubt the case; but, as the Extra-Assistant Conservator remarks, it a matter which can be separately settled. The subject requires further examination. He has been addressed again on the subject.

* Note by Extra Assistant Conservator of Forests, dated 20th July 1894.
Note by Assistant Commissioner of Ajmere, dated 20th July 1894.
Note by Assistant Commissioner Merwara, dated 14th August 1894.

8. The arrangement of the "Coups" suggested in Mr. Coventry's "Tabular statement of ~~Billings~~ Fellings" at paragraph 120 of his draft and which the Extra-Assistant Conservator of Forests criticizes unfavourably, can be modified later, if it proves inconvenient in practice. At present I do not think any change is necessary.

9. In paragraph 105 at page 41 of his draft-plan, Mr. Coventry proposes that the two small areas, Jalia and Balad, of 50 acres, shall be treated as a Babul high forest. Sirdar Hira Singh gives reasons, which appear to deserve consideration, for converting them into a Shisham high forest. This is a point on which the Inspector-General of Forests will no doubt given an authoritative opinion.

10. In paragraph 123 (page 48) Mr. Coventry recommends that free grants of timber shall be restricted to the areas which it is proposed to coppice during the following year. I agree with the Extra-Assistant Conservator and with the Deputy Conservator of Forests, Ajmere, in the opinion that such grants may be made, without injury, from all areas which have not been actually brought under coppice treatment.

11. To avoid damage to the Forests, I concur with the Forest Officer in the opinion that no grazing should be allowed in coppiced areas for the first ten years.

12. The fire-line near Pipli in the Todgarh Block should, as stated by Sirdar Hira Singh in the tenth paragraph of his note, be added to the list on page 55 of the Draft Working-Plan.

13. This concludes the amendments to the draft proposed by the Extra-Assistant Conservator, who has carefully examined it, and by the District officers. I have no further suggestions to add. Grazing and grass cutting are the questions of vital inportance in Ajmere-Merwara, and they have already been discussed in detail in the correspondence referred to earlier in this letter with the modifications therein proposed, and those now advocated. I have the honour to recommend that the Draft Working-Plan be finally approved and sanctioned.

I have the honor to be
Sir,
Your most obedient servant,

(Sd.) A. MARTINDALE,

Commissioner of Ajmere-Merwara.

Note on Mr. Coventry's Working-Plan.

1. The quantities of fuel consumed by the towns of Ajmere and Beawar and given on page 34 of the Working-Plan are very much under estimated. Only one maund of fuel is allowed per man for a whole year which is absurd.

2. However the limited forest resources available cannot in the present circumstances supply more firewood than that provided for by the Working-Plan. The present demand for firewood from Government forests is limited: (1) Because the prices of fuel are high, and (2) because the poorer classes burn cow-dung by preference, which is cheaper than the wood. But the loss to agriculture in the latter case is very great indeed considering that cow-dung is the only manure at the disposal of the cultivator.

3. The reduction of rates in the prices of fuel sold to the public and to the contractors is therefore a subject of supreme importance but it is one which can be dealt with irrespective of the Working-Plan.

4. The subject of grazing and grass cutting has been already disposed of so that this note only goes into the question of fuel and other forest produce.

5. The coupes have been marked on the maps only approximately. In fuel practice it is not only inconvenient to follow them on the ground as they do not follow any artificial or natural boundary, but it also remains to be seen when the arrangement of coupes laid down on pages 45, 46 and 52 can be strictly enforced, because the acreage (700 acres) which the plan provides for cutting annually is far in excess of the present requirements of the market.

6. *Jalia* and *Balad* have been treated as Babul High Forests (para. 105) and then in para. 116 it is mentioned that one acre should be annually felled, which means probably during the present rotation, for which the plan has been framed, and evidently also on the coppice system.

7. These are contradictory facts because in a *high* forest trees are not felled till they attain the maximum maturity. This by itself is a question of many years and as too mature trees do not coppice, I fail to see how the coppice method had been recommended in the case of these two forests. Instead of Babul I should prefer to convert it into a Shisham High Forest, for Shisham grows just as well as the former species, and there is a small nursery at Jalia where the necessary Shisham seedlings can be prepared and transplanted systematically every year.

Free grants of timber.

8. Paras. 123 and 141. It would be hard upon villagers if free grants of wood were allowed from those areas only which it may be proposed to coppice during the following year. I see no objection if they were given from *all areas* which have not been brought under the coppice treatment.

9. The several coupes in which the Todgarh block has been divided may be worked independently of the grazing question which as previously decided should be allowed uniformly over the whole area and not by blocks in rotation. The order in which the coupes have been worked need not therefore be observed. It should, however, be laid down that no grazing shall be allowed in coppiced areas for the first ten years.

Fireline.

10. Para. 149, another fireline which it has been proposed to burn near Pipli in the Todgarh block where the Government forest adjoins private grass preserves, should be added to the list given on page 55.

(Sd.) HIRA SINGH,

Extra-Assistant Conservator
of Forests, Ajmere-Merwara.

No. 15, dated the 20th July, 1894.

Submitted to the Commissioner and Conservator of Forests, Ajmere-Merwara, through, Assistant Commissioner, Ajmere.

Assistant Commissioner, Beawar, with reference to his No. 6 F, dated the 10th April 1894.

(Sd.) HIRA SINGH,

Extra-Assistant Conservator
of Forests, Ajmere-Merwara.

Dated Ajmere, the 20th July, 1894.

The portions of the Extra-Assistant Conservator's note which concern Ajmere are :—

I. The advisability of lowering the price of firewood.

II. The inconvenience occasioned by the coupes having been marked on the map approximately only, and the probability that it will not be possible to adhere to the arrangement of the coupes laid down in the Working-Plan.

III. The question whether free grants of wood should not be made from all areas which have not been brought under coppice treatment.

With reference to the first point, the Extra-Assistant Conservator of Forests would lower the price of firewood, partly because the poorer classes use cow-dung as fuel instead of as manure for their land to the detriment of agriculture. No doubt it would be desirable that agriculturists should use this manure for their lands, but the reduction of the price of fuel from Government reserves would not make much difference in this respect, for agriculturists as a rule pay nothing for their fuel, besides, the reserves could not supply anything like the amount of fuel which is required. If the fuel from Government reserves is not bought readily, the probability is that the price demanded is too high, and it should therefore be reduced.

In regard to the second point, the Extra-Assistant Conservator is, so far as I can judge, right. I agree with the Extra-Assistant Conservator in his suggestion as to free grants of wood.

(Sd.) P. J. MELVILL,
Assistant Commissioner.

Ajmere, 26th July, 1894.

In my letter No. 110, dated 24th April 1894, my criticisms were confined to the proposals regarding grazing and grass cutting because I did not feel competent to offer an opinion on such subjects as fellings, sowings, plantings, etc., nor am I in a position to do so now.

There is no doubt that the estimate of fuel consumed annually in the town of Nayanagar is much too low. I should be inclined to say that for *purely domestic purposes* about 125,000 maunds of wood were consumed annually, the poorest house in the warmest weather requires about 2 seers of wood a day for household purposes. Then again a good deal of wood is required for burning corpses, and a great deal more is consumed in the mill and various presses.

The present price of wood is undoubtedly high and if it be found that all available wood cannot be sold at that rate, then the price should be lowered. I have no knowledge of the coppice system so am unable to say whether free grants of wood should be given only from those areas it is proposed to coppice during the following year or from all areas not already coppiced. For these reasons also, I have no further remarks to offer.

(Sd.) K. D. ERSKINE,
Assistant Commissioner,
Merwara.

14th August 1894.

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Map of District, scale 1″=1 mile.

Maps of Mohwa Bir, Madar Hill, Nagpahar, Taragarh Valley, Dilwara Bir, Chang Gate Bir, Chang, Borwar, Siliberi, Sheopura, and Anspahar, Todgarh Reserve (Bagri Block), scale 4″=1 mile.

Working Plan for the Ajmere-Merwara Reserved Forests.

INTRODUCTION.

1. The following Plan has been drawn up for the Reserved Forests of Ajmere-Merwara because the Government of India considered it desirable to bring the forests under systematic management in order to induce the Native States of Rajputana to treat their forests in the same manner. The preparation of the Plan, including the time required for writing the Report, occupied a period of fourteen weeks. The total cost of the works, including the pay and allowances of the Working Plans officer, and all other charges, was Rs. 2,024, or Rs. 14½ per square mile. The fillings were surveyed and the maps, which accompany this Report, were drawn by the Forest Ranger, Babu Nand Mal, who also supplied much useful information concerning the working of the forests, the different kinds of trees, &c. The Forest Officer, Sirdar Hira Sing, also gave all the assistance in his power.

PART I.

Summary of Facts on which the Proposals are based.

Name and Situation.

2. These Plans have been prepared for what is known as the Ajmere Merwara State Forests. They are also called Reserves or Reserved Forests. They comprise 24 separate areas situated in the Ajmere and Merwara Districts within the jurisdiction of the Commissioner of Ajmere-Merwara. The forests of the Ajmere District surround and supply with produce the town of Ajmere. The District of Merwara is divided into two Tehsils, *viz.*, Beawar and Todgarh. The forests of the Beawar Tehsil are situated to the south-east and the south-west of Beawar and supply that town with forest produce, but the forests of the Todgarh Tehsil are a long distance from Beawar and the railway line, and there is difficulty about transport owing to the absence of roads leading to the forests, so that at present very little produce is extracted.

3. These forests constitute six ranges, all under the charge of an Extra Assistant Commissioner.

Configuration of the ground.

4. The Ajmere and Merwara districts are situated on an elevated plateau about 1500 feet above sea level. On this plateau the Aravali range of hills is found. This range runs in a direction from N. E. to S. W. and is formed of a series of detached hills which rise to a height of 600-1200 feet above the

N. W. and are sometimes almost vertical. "The Aravali hills abound in mineral wealth. The Taragarh Hill is rich in lead and copper, and iron mines have been worked, but did not pay their expenses. Good building materials abound throughout the District and stone is often used for purposes for which wood is employed elsewhere in India. Door frames are often made of stone and the best roofing is made of slabstones resting on arches, or on stone beams, while thin slabs are used as slates. Slabstones are also used for spanning culverts. Slabs, 12 to 14 feet long by 3 to 4 feet or even more in width, and beams 20 feet or upwards in length by 1½ feet in width, are procurable. Suitable clay for bricks is not obtainable and bricks are seldom used, but for rubble masonry stone is everywhere to be met with. Limestone, granite, and marble, of a coarse kind, are procurable, while sandstone is brought from a distance in Marwar. Lime is burnt from Kunkar and limestone, the latter being preferred by the natives. Limestone is obtained in abundance near Beawar, and Kunkar is to be met with in all parts of the District. Materials for road-metal are everywhere abundant."

10. The soil resulting from the disintegration of these rocks is of a more or less sandy nature. That which results from schists and quartzites contains the largest proportion of sand and is generally very poor, that from granite and gneiss contains a certain amount of clay and is fairly good. In some of the Reserves a great deal of deep sandy soil is found at the foot of the hills and in the valleys, and in some places sand dunes, which are said to have been formed of blown sand. The hill sides are often covered with boulders or sheets of rock and the soil is generally very shallow. The rocks generally split into layers which are almost vertical, so that the roots of trees can penetrate into them to a certain extent. In brief it may be said that the soil is very dry, and of poor quality, and on the hill-sides shallow.

Climate.

11. The distinguishing characteristics of the climate of these districts are its dryness, the uncertainty of the rainfall, and the great divergences between the temperature at different seasons of the year. The climate is healthy and the air is dry even during the rainy season. "This province is on the border of what may be called the Arid Zone, and is the debatable land between the north-east and south-west monsoons and beyond the full force of either. The south-west monsoon sweeps up the Nerbudda valley from Bombay and crossing the table-land at Neemuch, gives copious supplies to Malwa, Jhallawar, and Kotah, and the countries which lie in the course of the Chambal river. The clouds which strike

Kattywar and Kutch are deprived of a good deal of their moisture by the influence of the hills in those countries and the greater part of the remainder is deposited on Abu and the higher slopes of the Aravali, leaving but little for Merwara, where the hills are lower, and still less for Ajmere. It is only when this monsoon is in considerable force that Merwara gets a plentiful supply from it and it is only the heaviest storms which get as far as Jodhpore, where the average rainfall does not exceed 4 or 5 inches, while beyond this is the rainless land of Sind. The north-east monsoon sweeps up the Bay of Bengal and waters the northern parts of Rajputana, but hardly penetrates further than the longitude of Ajmere. On the conflicting strength of these two monsoons the rainfall of the districts depends. The prevailing wind during the rainy season is a south-westerly one, but there is but little rain that comes from that direction. The S. W. monsoon is exhausted before it reaches Merwara, and if this monsoon is in the ascendant, the weather will be cloudy and there will be light and partial showers but no heavy rain. When the wind veers round to the west, as it often does, there will be no rain. It is from the north-east that Ajmere, Beawar, and Todgarh get their heaviest rainfalls, though the south-west monsoon has naturally more effect at Todgarh than at Ajmere. The central portions of the province often receive heavy rain from the north-west, the north-east monsoon being apparently diverted from its course by the winds from the desert. The direction of the rainfall is most changeable and the rainfall exceedingly partial. Not only, however, is the rainfall most precarious and partial varying in total amount very much from year to year and from place to place, and falling with fury on one side of a hill, while the other is perfectly dry, but it is most irregularly distributed over the rainy season, and most uncertain as to the intensity of the fall." The average rainfall at Ajmere is about 23 inches, at Beawar 18 inches, at Todgarh 24 inches, and at Dewair 27 inches, but the latter is doubtful.

12. Years of famine occur from time to time, the three last having taken place in the years 1869, 1879, and 1892, and years of scarcity are of frequent occurrence.

13. In order to determine whether the forests had any effect on the rainfall and the temperature, meteorological observations have been taken during the last few years. Stations have been established near several of the Reserves, one being outside and the other the same distance inside the forest. The average of five stations for the past six years shows that the rainfall outside the Reserve was 15·91 inches and inside 18·13.

14. The following statement shows the average maximum, minimum, and mean temperature of the last 6 years for the meteorological stations in Mohwa Bir Reserves. One station is situated outside the forest and the other inside. The crop in Mohwa Bir consists of scrub jungle.

Month.	Maximum.		Minimum.		Mean.	
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.
January	73·8	72·5	40·4	44·1	56·2	57·4
February	78·2	76·6	44·5	48·4	61·0	62·2
March	89·3	87·6	56·1	59·2	72·3	73·0
April	100·2	98·6	65·0	68·4	83·2	84·1
May	105·2	103·5	74·6	75·6	88·6	87·6
June	101·0	100·2	78·6*	78·1	87·6	83·3
July	92·0	90·6	75·6	76·3	83·0	82·6
August	87·3	86·6	73·8	73·9	78·6	78·4
September ...	92·6	91·8	71·2	71·9	79.8	80·1
October	93·4	92·3	57·1	61·7	74·0	75·4
November ...	85·7	84·4	45·6	50·9	63·9	66·2
December ...	78·4	76 8	39·7	45·3	58·2	59·4

15. From the above it will be seen that as regards the temperature outside, the maximum is highest in May. It then decreases, but from September to October it again increases, and afterwards decreases. The minimum temperature rises from January to June and then decreases. The mean temperature reaches its highest point in May after which it decreases, but again it slightly increases and then decreases. It will also be seen that according to the above table the extremes of temperature are greater inside the forest than outside. However, the mean temperature is lower inside except during the months—May to August.

16. As regards seasons, there is a long dry season from October to May and a short rainy season from June to September. Slight rain may fall during any month, but at least three months of the year are free from rain.

17. During the cold weather frost is of frequent occurrence by which many seedlings and sometimes mature trees are killed. Seedlings that survive this are often killed later on in the season by drought. Again there is often a break during the rains, so that seed that has sprouted is killed. From this it will be seen that sowings and plantings are carried on under great difficulties, and the latter only succeed when the young plants are watered for two or three years. During the hot weather violent winds blow from the west, but the grass withers early and can generally be burnt in December.

Agricultural Customs affecting the Proposals.

18. In these Districts cultivation is carried on in the valleys and on the level ground. The population presses heavily on the good land while the soil is naturally thin, hence heavy manuring and high cultivation require large herds of cattle.

19. The grazing lands generally are of the most wretched description. Most of them contain no trees, but merely shrubs grazed down to the level of the ground by sheep and goats, while in a few cases even the "thor" (Euphorbia nivulea) has been removed and nothing remains but the bare hill sides. During the last few years an endeavour has been made to induce the villagers to reserve some of these grazing lands by the formation of village "birs." At the present time there are nine village "birs" with an area of 5400 acres under the management of the Forest Department. There are others which are under the management of the Tehsildars, and the villagers themselves have in some cases formed "birs" and look after them themselves and arrange all disputes among themselves. The "birs" under the Forest Department are managed as follows :—The villagers agree to contribute a few rupees a month for the pay of a chowkedar, or a forest guard from one of the Reserves in the neighbourhood is put in charge of the "bir" in addition to his ordinary work and is paid a few rupees a month by the villagers. No sheep or goats are allowed in the "birs." During the rains all grazing is stopped, in November the villagers cut the grass, and from December to the rains graze their cattle in the "birs." A portion of the grass may be set aside and is sold by auction by the Forest Officer in order to recoup the villagers for the pay of the forest guard. These "birs" are an excellent institution, and their formation should be promoted as much as possible. Already a few babul trees are beginning to grow up, and shoots to spring, from the shrubs which were formerly grazed down to the ground by sheep and goats and will in a few years yield useful timber. The "birs" also contain a good crop of grass. The following is a description of a "bir" managed by the villagers themselves. The villages of Chaja, Charpalan, and Ghopa are inhabited by the descendants of a common ancestor. They have formed a village "bir" and divided it up into shares according to families, the size of the share allotted to each family depending on the number of ploughs possessed by each. During the rains grazing is not allowed. After the rains each family cuts the grass on its share, and when all the grass has been cut the cattle graze over the whole area in common. During years of famine they graze their cattle and do not cut the grass. The "birs" under the Tehsildars are managed in the same way as those under the Forest Department, but the Tehsildars are said not to take much interest in the matter. The formation of village "birs" is very important because when the trees grow up, the right-holders will be able to obtain timber from the "birs" instead of from the Reserves, and the grazing difficulty will be considerably lessened. A copy of the agreement form which villagers sign when a "bir" is taken up for the first time is given in appendix A.

Distribution and Area.

20. The forest area is formed of a number of separate forests generally situated on hilly ground. The number of demarcated forests is 24, of these 9 are situated in the Ajmere District, 11 in the Beawar Tehsil, and 4 in the Todgarh Tehsil. The Todgarh Reserve is the largest forest with an area of 53 square miles, or more than one-third of the total area. The next largest is the Dewair Reserve with an area of 20 square miles. The other Reserves are smaller with an average area of about 3 square miles.

21. The forests in the Ajmere District form 1·4 p. c., of the area of that District, and in Merwara 18·6 p. c., and the total area of the forests forms 5·3 p. c. of the total area of both Districts.

22. The following statement shows the area under forest and under cultivation in each Reserve.

Reserve.	Area under Forest.	Area under Cultivation.	Total included within Forest Boundaries.	Equivalent in Square Miles.
1. Mohwa Bir	1835	50	1885	3
2. Madar Hill	850	...	850	1
3. Makerwali	2657	18	2675	4
4. Nagpahar	2479	...	2479	4
5. Taragarh Valley ...	1203	23	1226	2
6. Srinagar	3623	...	3623	6
7. Danta...	1429	...	1429	2
8. Rajosi...	1303	...	1303	2
9. Rajgarh	2653	...	2653	4
Total ...	18032	91	18123	28
10. Dilwara Bir	232	...	232	1
11. Chang Gate Bir... ...	49	..	49	...
12. Jalia	37	...	37	...
13. Balad	13	...	13	...
14. Chang...	2918	29	2947	5
15. Borwar	2401	7	2408	4
16. Kotra	1726	3	1729	2
17. Siliberi	520	...	520	1
18. Sheopura	2747	39	2786	4
19. Anspahar	1579	60	1639	3
20. Beliawas	3237	99	3336	5
Total ...	15459	237	15696	25
21. Amner	4088	26	4114	6
22. Banjari	4621	110	4731	8
23. Todgarh	33842	207	34049	53
24. Dewair	12966	101*	13067	20
Total ..	55517	444	55961	87
Grand Total ...	89008	772	89780	140

*The village of Dabjhar (99 acres) is included within the forest boundaries.

23. The forests have been surveyed by a party of the Survey of India Department, and topographical maps on the scale of one inch to the mile have been drawn up. Skeleton maps for each Reserve showing only the boundary of the Reserve, the fire lines, and the portion of the Reserve belonging to each village have also been prepared. The former are found to be nearly perfectly accurate, but the scale is too small for detailed work. The latter are inaccurate, *i. e.*, boundary marks are shown on the map which are not found on the ground and *vice versa*, and sometimes the boundary line is drawn in the wrong direction. The boundaries of all the Reserves require to be surveyed and the maps corrected, and the paths, ridges, and principal streams, &c., marked on them. Some of the maps have been corrected by the Ranger, Babu Nand Mal, and this work should be continued in all the Reserves. The maps in their present condition are not of much use The areas have been taken from the maps by the acre square method and also by means of the planimeter. The area of the cultivation included in the Reserves has been taken from the Patwaris maps, on the scale of 8 inches to the mile, which were drawn up at the time of the Revenue Settlement.

Boundaries.

24. The Forest Reserves are demarcated by means of conspicuous boundary marks placed at suitable distances. As stated above the boundary marks are not always found on the ground in the same position as they are shown on the maps, and that some of the pillars shown on the maps have disappeared. When the forests were first taken up it was found that the villagers were very liable to remove the boundary pillars, and in all places considered liable to encroachment masonry pillars were erected. This may explain the disappearance of some of the pillars and it is very desirable that in places where there are no fences that the boundary marks should be made as permanent as possible. The boundary marks are generally about 200 yards apart. They are square, built of loose stone work about $1' \times 1' \times 2'$ with a flat slab $2' \times 1'$ fixed in the top. The slabs are whitewashed every two years and the numbers painted on them or cut into the stone. The masonry pillars are rather larger. The boundary pillars are repaired annually wherever necessary by the forest guards.

25. Grazing is allowed to the inhabitants of certain villages and also to certain hamlets situated within the Reserves. In the Amner and Srinagar Reserves a portion of the forest has been permanently marked off by means of a line of boundary pillars bearing serial numbers. The inhabitants of these villages are allowed to graze cattle in that part of the Rajgarh Reserve, which once formed part of their village grazing land. Care must be taken that these old village

boundary marks are kept in repair. Certain hamlets in the Sheopura, Beliawas, Banjari, and Todgarh Reserves, are allowed grazing, and for this purpose portions of the Reserves have been marked off. These boundary marks must be kept in repair.

26. The cultivation inside the Reserves consists of hundreds of small areas of an average size of about $\frac{1}{8}$ acre, the largest not exceeding about 2 acres. In a few cases this cultivation is demarcated by means of heaps of stones, but this is not of much use as it is found by experience that the cultivators remove these marks whenever they wish to increase the size of their fields. Generally, there are no boundary marks of any kind. The fields are of very irregular shape and, being small, it is very difficult to prevent encroachment without measuring each field with a chain, which would require a considerable length of time. The only way to prevent encroachment would be to erect pucka masonry pillars, but the cost would be prohibitive.

27. The adjoining estates consist of village grazing land or cultivation. Hence the Reserves are very liable to trespass, and to prevent this many of the Reserves have been fenced in, where accessible, by means of Euphorbia hedges or stone walls, 3 feet high and 2 feet thick, or, when the boundary crosses a nullah, by thorns. Where the soil is sandy, ditches or earth embankments have been sometimes made. At the present time 131 miles of boundary have been fenced in one or other of the above ways.

28. In Merwara where the forests adjoin Marwar territory a line has been cleared of trees and shrubs and burnt, half being done by Marwar and half by the Merwara Forest Department. A cleared line is also required along the eastern side of the District where the forests adjoin Bednore territory, as at present it is very difficult to tell which is Merwara and which Bednore, the District boundary pillars being a long way apart. The Thakur of Bednore has begun to reserve his forests and has agreed to cut the line on his side, so that the work can be carried on simultaneously by Merwara and Bednore Forest Department, 20 feet being cut on each side, so that a line 40 feet wide will be formed. On the eastern side of the Todgarh Reserve and in other places lines require to be cleared in places where the Reserves adjoin other forest land.

29. It would be a good plan to draw up a register of boundary marks, each pillar being described with reference to the neighbouring hills and streams. This could easily be done because every small hill and stream has a name.

30. The old village boundary pillars should be kept in repair. They are useful for finding one's place on the map, and if kept in repair, it may prevent disputes among the different villages.

31. Between Rajosi and Danta blocks there is a line of boundary pillars. These are not required and could be removed, the Ajmere-Nusirabad Road being taken as the boundary between the two blocks. This would increase the area of the former Reserve by about 50 acres and diminish the latter by the same amount.

Legal Position of the Forests.

32. The Districts of Ajmere and Merwara were ceded to the East India Company by the Marathas by the treaty of 25th June 1818. "The Waste lands and hills in the Government villages thus became the property of the State and the people had no rights in them. Colonel Dixon for the first time demarcated village from village by regular boundaries and at the Settlement in 1850 included the waste in the Shamilat or common land of the villages, but at the same time the villagers on their part bound themselves to plant trees and preserve the jungle to a reasonable extent. This engagement they never attempted to keep. The consequence was that these lands gradually became denuded; that in dry seasons they failed to afford sufficient pasture for the cattle; that wood was getting scarce; that the water supply in wells and streams became uncertain; that the smaller tanks silted up at an alarming rate and that in many cases the bunds were breached by sudden floods rushing down the bare hill sides. Many of the numerous tanks constructed by Colonel Dixon had been rendered either useless or their usefulness had been greatly impaired. In 1871 Sir D. Brandis inspected the waste lands of these Districts and in accordance with his suggestions, it was decided to acquire certain areas on the hills of these Districts and to improve them by protection and planting. The period of Settlement made in 1850 having expired a new Settlement was commenced in 1870, and it was decided to make an attempt to secure the control of certain tracts of hill and waste. As, however, it was found impossible to obtain the consent of the people to the arrangements proposed by the Settlement Officer it was decided to have recourse to legislation and accordingly in December 1874 the Ajmere Forest Regulation was passed which empowered Government to take up any waste or hilly land for the purpose of forming State Forests, certain rights in such land being secured to the villagers. Previous to the passing of the Regulation two Forest Officers were posted to Ajmere, and operations were commenced in March 1872 by the establishment of plantations on certain lands which were at the disposal of Government, and by the protection, as a preliminary measure, of some of the tracts which it had been determined to take up as State Forests. In accordance with the provisions of the Regulation a number of tracts have been taken up from time to time, and declared State Forests. In

June 1875 a set of Forest Bye-laws was drawn up under the Regulation and published for general information. By its provisions the cutting of wood, carrying of fire, grazing of cattle in the Reserves, &c., are declared to be Forest offences.

33. The following table shows the years in which the different Reserves were notified and the number and date of the notification.

Reserve.	Year when notified.	Where notified.	Number and Date of Notification.		Remarks.
Chang ...	1875	Rajputana Official Gazette.		24th April.	
Beliawas ...	"	"		"	
Todgarh ...	"	"		"	
Sheopura ...	"	"		"	
Nagpahar ...	"	"		26th June.	
Taragarh Valley ...	1876	"		10th June.	
Dilwara Bir ..	"	"		"	
Chang Gate Bir ...	"	"		"	
Srinagar ...	"	"	No. 1961 S	25th July.	
Mohwar Bir ...	"	"		19th August.	Chief Comr.'s No. 2114 S.
Madar Hill ...	"	"		"	Do.
Bolwar ...	"	"	No. 2839 S	7th Nov.	
Kotra ...	"	"	"	"	
Ansapahar ...	"	"	"	"	
Rajosi ...	"	"	"	"	
Dewair ...	1880	"	No. 1656 S	24th June.	
Danta ...	"	"	No. 1798 S	6th July.	
Rajgarh ...	1884	Gazette of India Part II.		22nd March.	
Selliberi ...	"	"		"	
Amner ...	"	"		"	
Banjari ..	"	"		"	Pp. 184 and 185.
Sheopura extension	"	"		"	Extension of Sheopura to the South.
Makarwali ...	"	"		9th August.	Chief Comr.'s No. 1933 S.
Todgarh ..	1890	"		2nd October.	Patch (83 acres) of Soymida febrifuga.
Balad ...	1891	"	No. 234 S	19th Febry.	
Jalia ...	"	"	"	"	

Rights.

34. The proprietary right in these forests is vested in Government, but the villagers, whose lands have been taken up to form the forests, exercise the rights

(1) To cut grass.

(2) To cut wood for actual domestic or agricultural requirements on the permission of the Forest Officer being obtained.

(3) To rights of way to paths and roads of a permanent and definite character.

(4) They are entitled to $\frac{2}{3}$ of the net profits resulting from successful forest management. Grazing is not a right according to the Ajmere Forest Regulation.

35. "The Regulation defines the term villagers to include the members of the proprietary body of any village and gives power to the Commissioner subject to the control of the Chief Commissioner to declare any persons or class of persons

entitled to the status of villagers. The Regulation does not state that these rights are vested in the inhabitants of certain villages only, but it is understood that under the Settlement these rights can only be exercised by the inhabitants of those villages, portions of the areas of which have been taken up to form the forest, and that the rights of the inhabitants of each village extend only to the area taken from their own villages. Traders and others who hold no land and pay no land revenue are not supposed to be entitled to exercise these rights unless they are specially authorised to exercise them. Like forest rights generally, these rights are vested in the holders of cultivated land outside the forest." The rights are exercised subject to the control of the Forest Officer, whose orders are open to *appeal to the Commissioner.*

36. As regards the cutting of grass the Forest Officer may determine the seasons at which it may be cut, and the mode of cutting it, and he may prohibit the cutting of grass in any part of the land where such cutting would interfere with the growth of young seedlings. At present grass is allowed to be cut in Ajmere for a period of 6 weeks, commencing one week after the Pushkar fair (about October 15th) or in the case of Mohwa Bir, Madar Hill, Taragarh, and Nagpahar, on the fourth day after the Pushkar fair. In Merwara grass cutting is allowed for a period of 4 months from about the 15th October. The inhabitants of certain non-right holding villages are also given free permits for cutting grass in return for assistance rendered in burning the fire-lines. One ticket per plough (pair of bullocks) is given to the right-holders and those who have no ploughs are given half a ticket, which means that they are only allowed to cut grass for half the period during which grass cutting is permitted. The estimated value of the grass removed annually by right-holders is 53,500 Rupees.

37. As regards the cutting of wood the Forest Officer may determine the place where, and the season when, it may be cut. By wood is understood building wood, or wood for wells and agricultural implements, and not fuel or bamboos. Fuel, however, is given free for burning the dead, if applied for. It is only the Kewadars who are given wood free. The procedure is as follows :— The forester measures the applicant's house and determines the actual quantity of wood required. He also finds out whether any free grants of wood have been given to the applicant during the past three years. If this is not the case a report of the quantity of wood required is sent to the Forest Officer, who forwards it to the Commissioner for sanction. The value of the wood supplied free to each applicant is about 3-5 Rupees and about 325 Rupees worth of wood is supplied free annually to all right-holders.

38. As regards right of way the Forest Officer may stop any path through orest and assign another path instead, provided that the new path set out m be a reasonable substitute for the way so stopped. There are several les in the Reserves to which access for purposes of worship is allowed. e are also rights of way to the cultivation in the Reserves.

39. As regards cultivation only the area assessed is allowed to be culti-. The cultivating rights in the remainder will remain in abeyance so long e Reserves remain taken up by the Government for forest purposes. No land is allowed to be broken up.

40. A list of right-holders is drawn up every year by the Patwaris and through the Assistant Commissioners to the Forest Officer. In accordance this list permits are issued for cutting wood and grass. The list shows the es of the right-holders and the number of cattle possessed by each. In vara these lists are only drawn up every five years, but many alterations place, e. g., men die, cattle are bought or sold, so that it will be advisable to these lists submitted annually.

41. The following privileges are exercised by the inhabitants of certain ges :

serve.	Nature of Concession.	Number or Quantity.	Area assigned for grazing.	Period.	To whom made.	Estimated value Rs.
wali ...	Munj Grass.	Bundles 350.			Kanas and Hokran Villages	65
rh	Grass.	1 ticket per house.		To commence 10 days after right-holders.	Inhabitants of 11 non-right-holding Villages.	6,400
ar ...	Grazing.	Cattle	817	1st Nov. to rains.	Cattle of Srinagar ...	204
h ...	,,	330	309	1st Feb. ,,	,, Myapur, Noharpura and Kotaj...	52
r ...	,,	...	199	1st Dec. ,,	,, Amner and Ajitgarh...	50
ara ...	,,	20	60	All year round.	,, Hamlets situated within forest limits.	694
vas ...	,,	42	130	,,		
ri ...	,,	70	200	,,		
rh ...	,,	793	1,730	,,		
			3,445			7,485

42. The rights in the different Reserves were settled by Mr. Whiteaway, lement Officer, in 1885-7 and a record of rights was drawn up. But many sions were discovered and a revised record of rights has been lately drawn up he present Forest Officer. Neither of these records has as yet been sanc-ed by the Government of India. The record of rights contains a general ription of the boundary lines and gives details of the rights in each Reserve.

43. The effect of the rights on the management of the forest is that instead of a small revenue being derived, there is a difficulty in avoiding a deficit. The expenditure has to be kept as low as possible and works of improvement cannot be carried out. The grazing retards the natural reproduction in the Reserves.

Description of the Forest Growth.

44. The Reserves in these Districts generally do not contain anything better than a scrub jungle, 5-6 feet high, but in places in south Merwara some very good forest is found, the trees reaching an average height of 20-30 feet or more.

45. The following is a list of the more important trees and shrubs with their native names :—

AJMERE No. 6.

1. *Am* Mangifera Indica.
2. *Amaltas* Cassia Fistula.
3. *Aonla* Phyllanthus Emblica.
4. *Arakdasan* Securinega Lencopyrus.
5. „ „ „ Obovata.
6. *Arinja* Acacia Lencophœa.
 Arij do.
7. *Aritha* Sapindus Emarginatus.
8. *Arni* Chlerodendron Phomoides.
9. *Arua* Ailanthus Excelsa.
10. *Atowan* Hamiltonia Suaveolens.
11. *Aual* Cassia Auriculata.
12. *Babul* Acacia Arabica.
13. *Bahera* *Terminalia Bellerica.*
14. *Bakain* Melia Azedarach.
15. *Bans* Dendrocalamus Strictus.
16. *Baonli* Acacia Jacquemonti.
17. *Bar* Ficus Bengalensis.
18. *Barna* Crataeva Religiosa
 Brarua do.
19. *Ber* Zizyphus Jujuba.
20. *Ber* „ „ Vulgaris.
21. *Bijasar* „ No. 95.
22. *Bilan* Aegle Marmelos.
23. *Bor* Zizyphus Nummularia.
24. „ Z. Xylopyra.
 Chachra No. 26.
 Charal No. 25.
 Chauvra No. 26.
25. *Cheril* Ulmus Integrifolia.
 Chir No. 67
 Chirlia No. 25.
 Chora No. 26!
26. *Dhák* Buten Frondosa.
27. *Dhaman* Grewia Vestita.
28. „ G. Asiatica.
29. *Dásan* Rhus Mysorensis.
 Dasni „
 Dhausan „
 Duvan „
30. *Dhókelán* Grewia Villosa.
31. *Dholra* Anogrissus Pendula.
 Dho „ „
32. *Dhudi* Holorrhena Antidysenterica.
 Dun Siris No. 97.
33. *Dhiri* Woodfordia Floribundo.
 Dhirni „ „
 Firangan No. 94. „
34. *Frásh* Tamarix Articulata.
35. *Gadichora* Erythrina Suberosa.
 Gadidhak „ „
36. *Gangan* Grewia Populifolia.
 Ghatolan No. 68.
37. *Gitoran* Capparis Horrida.
38. *Godela* Cordia Macleodii.
39. *Gol* Odina Wodier.
40. *Goliadho* Anogrissus Latifolia.
 Goriadho „ „
41. *Gonda* Cordia Myxa.
42. *Gondi* „ Rothii.
 Gundi „ „
43. *Ghorabel* Buten Superba.
 Gualbati No. 30.
44. *Gugal* Balsamodendron Mukul.
45. *Gular* Ficus Glomerata.
46. *Haldu* Adina Cordifolia.
 Haiepan No. 4 & 5.
 Hegu No. 99.
 Heris No. 102.
47. *Hingota* Balanites Roxburghii.
48. *Hirbabalia* Acacia Farnesiana.
49. *Imli* Tamarindus Indica.
50. *India dho*, Anogrissus Sp. ?
51. *Jal* Salvadora Percica.
 Jharbor No. 23.
 Jhalbor do.
52. *Jaman* Eugenia Jambolana.
53. *Jhao* Tamarix Dioica.
54. „ „ Gallica.
55. *Jhinja* Bauhinia racemosa.
 Jhija „ „
56. *Kabonan* Phyllanthus Reticulatus.
57. *Kachnor* Bauhinia Purpurea.
58. *Kadam* Staphegyne Parviflora.
59. *Khajur* Phœnix Sylvestris.
60. *Kakaira* Celastrus Senegalensis.
 Kakra No. 26.
61. *Kália* Albizzia Odoratissima.
 Kála Siris „ „
62. *Kamrukha* Loranthus Longiflorus.
63. *Kangani* Bel Celastrus Paniculatus.
64. *Kankaran* Flacourtia Sapida.
65. *Kar* Sterculia Urens.
66. *Kari* Feronia Elephantum.
67. *Karjia* Pongamia Glabra.
68. *Karumba* Randia Dumetorum.
69. *Karunda* Carissa Diffusa.
 Katamba No. 68.
70. *Katán* Capparis Segnaria.
71. *Kattang* Bambussa Arundinacea
72. *Khair* Acacia Catechu.
 Khainkera No. 64.
73. *Khairi* Dichrostachys Cinerea.
 Kaith No. 66.
 Kheim No. 58.

AJMERE No. 6 (*Contd.*)

74. *Khejra* Prosophis Spicigera.
Kekaran No. 64.
75. *Kembri* Ficus Virgota
76. *Kher* Capparis Aphylla.
Khirmalia No. 2.
77. *Khirna* Wrightia Tomentosa.
78. *Khirni* „ Tinctoria.
79. *Kumta* Acasia Rupestris.
Karus No. 67.
Koulai No. 73.
Koulasi do.
80. *Lamkâna* Briedelia Ritusa.
Lasora No. 41.
81. *Lunia* Hymenodictyon Excelsum.
82. *Marorphal* Helicteres Isora.
83. *Mohwa* Bassia Latifolia.
84. *Mokha* Schrebera Swietenoides.
85. *Mutrul* Sterculia Colorrata.
Narana No. 18.
86. *Negar* Vitex Negando.
87. *Nim* Melia Indica.
88. *Nimchameli* Millingtonia Portensis.
89. *Pâdal* Stereospermum Suaveolens.
90. *Padera* Hamiltonia Suaveolens.
Phalsa No. 27 & 28.
91. *Paraspipal* Ficus Cordifolia.
92. *Passi* Dalbergia Lanceolaria.
93. *Pipal* Ficus Religiosa.
94. *Pisangan* Grewia pilosa.
Pirangan „ „
95. *Rohan* Soymida Febrifuga.
96. *Rohira* Tecoma Undulata.
97. *Safed* Siris Albizzia Procera.
Salepan No. 4 and 5.
98. *Salar* Boswellia Thurifera.
Sarissa No. 102.
99. *Sainjna* Moringa Concanensis.
Segora „ „
Segu „ „
100. *Semla* Bombax Malabaricum.
101. *Senduria* Mallotus Philippinensis.
102. *Seris* Grewia Salvifolia.
103. *Sewan* Gonelina Arborea.
104. *Siris* Albezzia Lebbek.
Sirlia No. 25.
105. *Shisham* Dalvergia Latifolia.
106. „ „ Sissoo.
Sissoo „ „
Shora No. 26.
Soonjna No. 99.
Surril No. 25.
107. *Tambolia* Ehretia Laevis.
108. „ „ Obtusifolia.
109. *Timbru* Diospyrus Melanoxilon
Tibru „ „
110. *Thor* Euphorbia Nivulea.
111. *Umbia* Saccopetalum Tomentosum.
112. *Umbri* Ficus Glomerata.
Umran „ „

A classified list of the principal species is given in Appendix B.

46. "The general character of the arborescent vegetation of these Districts is similar to that on the hills of Central India, north of the Nerbudda river, with the addition of a few species belonging to the more arid regions of India, but a large number of species are wanting that are commoner further east and which also belong to the sub-Himalayan tract. Ajmere and Merwara are entirely outside the natural range of the three chief timber trees of the tropical and sub-tropical regions of India—teak, sal, and sissoo. The climate is too dry and not warm enough for teak and sal, and though it may be possible to keep a few teak alive in gardens in Ajmere, the cultivation of this tree or of sal should not be attempted on a large scale. Sissoo, on the other hand, grows well and should be grown extensively; but it is a native of a much colder climate—the Punjab and sub-Himalayan tract."

47. The distribution of the species in these Districts may be divided roughly into two portions by a line drawn east and west between the Amner and Beliawas Reserves. To the north of this line the following species are found, but they are also found all over the two Districts. Anogrissus Pendula, Acacia Rupestris, Rhus Mysorensis, Grewia Pilosa, Salvifolia, Villosa, Populifolia, Asiatica and Vestita, Ehretia Laevis, Euphorbia Invulea, Securinega Obovata, and Lencopyrus, Ziziphus Nummularia, Wrightia Tinctoria, Banhinia Racemosa, Albizzia Odoratissima, and a few others. In the north of the Todgarh Reserve

Briedelia Retusa is found. A short distance to the south of the line Dalbergia Latifolia, Argh Marmelos, Anogrissus Latifolia, Schrebera Swietenoides appear for the first time. Near the large nullah that passes through the centre of the Todgarh Reserve Randia Dumetorum, Diospyrus Melanoxylon, Cassia Fistula, are found in addition to the above. Still further south and to the north of the village of Todgarh, Saccopetalum Tomentosum, Ulmus Integrifolia, Eugenia Jambolana, Ginelina Arborea, Soymida Febrifuga, Sapindus Emarginatus are met with. And finally near Dewair, Mallotus Philippinensis, Holarrhena, Antidysenderica and Tereospermum. Thus it will be seen that most of the timber yielding species are found in south Merwara and that towards the south the number of species increases.

48. On the hills of these Districts there are often three zones of growth, but they are not always well marked, the species of two zones being often found growing together. These three zones may be called (1) A Salar forest; (2) A Dhokra forest; (3) A Ber forest. On the tops and upper slopes of the hills, Salar is found pure or mixed with Gol, Kar, Dhaman, and sometimes a few other species. A short distance from the tops of the hills and generally on northern and western aspects, in sheltered places, clumps of the small bamboo are sometimes found. At about the same elevation in south Merwara Goliadho, Kankaran, and Shisham often occur. Below this and extending to the foot of the hills is the Dhokra forest, if the soil is good. Where the hill slopes are gentle this forest often extends up to and covers the tops of the hills. Most of the important species are associated with Dhokra, the commonest in Merwara being Kalia, Passi, and Kair, and in Ajmere Koulai, Jhinja, four species of Grewia Salepan, &c. If the soil is inferior a Kumta forest replaces the Dhokra forest. This is a forest containing inferior species, such as Thor, Dasan, Gangan, &c. On level ground a scrub jungle containing a quantity of Ber or Bor is generally found. Along the banks of the nullahs a forest of Ber, Dhak, Khejra, Arinja, with sometimes a few Babul, Gadichora, Karumba and Hingota is the usual type. And on a different kind of soil, along the banks of large nullahs, in south Merwara Jaman, Gular, Khoin, Bohera, Lamkana and a few other species. Jhao and Negar are found growing in the nullahs in south Merwara.

49. The forest crop is very irregular. In Ajmere it is derived from the roots of trees which were formerly grazed down by sheep and goats. Shoots have sprung up and a few Nim, Khirni, Khejra, &c., are due to self-sown seed, or to sowings since the Reserves were formed. The growth is consequently very inferior and would be improved by being cut. In south Merwara the trees

probably have never been cut to any great extent owing to the difficulty of removing the produce, but some of the trees show signs of having been felled at the usual place, viz., 3 or 4 feet from the ground and have put forth new shoots. The density of the crop varies considerably. In places there are open blanks, and in others the trees are so close together that no grass can grow, but generally there is plenty of grass everywhere. Natural production by seed is very backward. In Ajmere there is practically no reproduction except of Nim, Salar, and Kumta which is due to the heavy grazing of the last five years, but in some of the Merwara forests there is reproduction of nearly all species. Pattern areas have been selected in some of the Reserves in order to mark the course of natural reproduction as compared with that in the adjoining portions of the forest.

50. The most important trees which constitute the forest growth are the following :—

1. *Dhokra.* This tree has a much more limited range than the broad-leaved species, Goliadho, which is also found, though much less common, on the hills of south Merwara. Dhokra extends from the Aravali Range of hills to the hills in the Hamerpur and Banda Districts, and from Kishengurh in the north to the Nerbudda near Punasa to the south. At a glance it may be distinguished by its smaller leaves and elegant slender drooping branches, and by the peculiar reddish brown colour of the foliage in the cold weather. In these districts the old leaves fall off in February and March, and it clothes itself with fresh foliage toward the end of the hot weather. It flowers in October and the seed ripens early in January. It is the chief tree that forms the sacred and other forests in Rajputana and forms almost pure forests of considerable extent, generally occupying the lower and more gentle slopes of the hills. Its reproduction from seed is fairly vigorous, but it reproduces itself chiefly by root suckers. It coppices and pollards well, but the growth of the coppice shoots is very slow. On the other hand they do not suffer from frost like the fast growing shoots of Kalia and other species. Coppice fellings have been going on for the last eight years and the results show that for the first seven years the annual growth in height is about one foot, shoots 7 years old having reached a height of 7-8 feet and a girth of 3-4 inches, shoots 8 years old were considerably larger and had attained a height of 10-12 feet and a girth of 4-7 inches. The largest trees reach a height of 30-40 feet and a girth of 5 feet, the average being 20 feet and 1-2 feet respectively. The trunks are generally crooked and branch at a height of 4-5 feet from the ground. Plants raised from seed are also of slow growth. This tree suffers considerably from drought; acres of forest in the Todgarh Reserve have

have been thus killed during the famine of 1892. All the top branches are dead, but new shoots are springing from the trunk. It will stand any amount of shade and grows best on northern or western aspects where the slope is not too steep and on soil containing a certain proportion of clay. There are several varieties of this tree to which different names are given, but the distinctions are not very clearly marked. Kantadho is a spinescent variety growing along the ground, Chikuadho is a variety with flexible twigs in contradistinction to one with brittle twigs, &c. This tree will not yield any timber, but poles for building and other purposes are obtained from the branches. In these Districts this species is preferred to all others for most purposes.

2. *Khair* is the next most important species. It is common in most of the Reserves in Merwara and should be sown extensively everywhere. It grows best when mixed with Dhokra and in such positions reaches a height of 30 feet and a girth of 3 feet, while trees 4½ feet in girth have been found. In some of the Reserves, e. g., Amner, a great many seedlings are coming up, but generally not many occur. This tree should not be cut at present in order to encourage the growth of seedlings, but if it is, a few trees per acre should be left to give seed. It coppices well up to a certain size, but trees more than about 3 feet in girth do not coppice. It also grows well on rocky ground with Salar. It makes excellent charcoal and the villagers prefer it to all others for well work. It is said to be more durable than other kinds in such positions. Small planks, cart poles, pestles, and mortars are made from its wood.

3. *Kalia.* This is one of the most promising constituents of these forests. It grows fast and forms straight well-shaped poles and may in time form timber. It grows on the hill sides with Dhokra but is not found in any large quantity, though scattered trees are numerous. Self-sown seedlings are numerous in sheltered places where the soil is good. This species has been sown and planted in some of the Reserves, but the operations have so far been unsuccessful. A plantation was formed in the Sheopura Reserve and the plants were watered regularly, but eventually all the plants were killed by frost. The coppice shoots are vigorous and reach a height of 10 feet in 2 years but they are also liable to be killed by frost. The largest trees noticed had a height of 30 feet and a girth of 3 feet. This tree stands shade and grows on the same kind of soil as Dhokra.

A forest composed principally of these tree species is the object to be aimed at in the management of the forests of these Districts. The Kalia will

yield timber ; dhokra, poles, firewood and charcoal, and Khair firewood and charcoal.

(4) *Salar.* Next to Dhokra Salar is the commonest tree. It is abundant on the ridges and upper slopes of all the hills, and self-sown seedlings are numerous. The largest trees reach a height, in the Todgarh Block, of 40-50 feet with a girth of 5 to 6 feet. It coppices and pollards well. It will not stand shade and is found on rocky hill sides. The principal use made of this tree at present is to feed buffaloes by lopping off the branches. The leaves of this species and of dhak are said to increase the quantity and the quality of the milk. The wood is used for making troughs for irrigation, and the villagers saw planks of it for making doors, &c. The dry wood is used for making wooden cups and plates, rolling pins and pipes. There is a regular trade in the latter article and many pipes are exported from the District. The gum is not collected at present. There is a very large quantity of Salar available, but only a very small fraction of it is utilised. The wood is used for making charcoal in other parts of India, and an endeavour should be made to induce the people to use it for that purpose. A small quantity might at first be made departmentally.

(5) *Shisham or Sissoo.* This tree is not found growing wild in the forests but has been planted extensively and has given the best results of all the species hitherto tried. Some of the trees planted 10-15 years ago have reached a height of 20-35 feet and a girth of 2-3 feet. The plants are said to stand the most severe drought, and transplants three years old to establish themselves in the course of a year. But the plants have only succeeded in such places as light sandy soil near the bank of a nullah or near a well, and probably will not grow in any other position unless they are watered for 3 or 4 years.

51. The two following species are very characteristic especially of the Ajmere Forests :—

(1) *Kumta* is a knotty, very hardy shrub or small tree (10-15 feet high and 1-2 feet girth). "It is a tree peculiar to the arid and sub-arid regions of India, being common on the dry hills of Sind and extending westwards over Arabia and the drier parts of Africa." It is common on rocky hills and sand drifts and is found on the worst soil. The wood is used for fuel, but decays rapidly so that it cannot be kept for any length of time.

(2) *Thor.* "A succulent shrub often 15' high consisting of dense masses of green, round, fleshy stems, with whorled branches and spirally arranged spines. It forms a marked feature in the scanty vegetation of the rocky hills of Ajmere. In many places before protection commenced this was the last remnant of the

natural vegetation with the exception of a belt of Salar along the crest of the hills and a fringe of Dhokra and a few other trees in the valleys. When nothing else can be got the dry stems and branches of Thor are used for fuel, but it is not of much value and has generally been spared. It is very useful, however, so far as it shelters the seedlings of trees, particularly of Nim which often germinate and grow up under its protection, and which if exposed would be eaten by cattle." As the forest grows up this species disappears, very little being found in the Todgarh block.

Injuries to which the Crops are Liable.

52. The chief preventible causes of injury are grazing and fires. The bad condition of the forests as regards natural reproduction is largely due to the way in which grazing has been allowed in all the Reserves during the last five years. In those portions of the forests that have been permanently marked off for the grazing of cattle the forest growth is also much poorer than in the neighbouring portions. The opening and closing in regular rotation of different blocks would do away with this evil to a certain extent, but by the Regulation the villagers only possess rights over that portion of the forest which once formed part of their village grazing land. In the Rajgarh Reserve the whole area available is already grazed over, so that no blocks could be formed. In the Srinagar Reserve there is space available for the formation of two blocks, but in the second block the growth is almost as bad as it is in the area already grazed over. In the Amner Reserve grazing is allowed in a narrow strip along the boundary line. The portions of the forest mentioned above are called "open forest" with an area of 1,300 acres and it appears best to make no alteration in their system of management. As regards the grazing of hamlets situated inside the Reserves the formation of grazing blocks would be advantageous.

53. Fire does little damage in these forests. In Ajmere there is no danger of fire entering the forests from outside, because on the land outside there is no grass to burn, and inside the Reserves nearly all the grass is cut by right-holders. In Merwara fire-lines are burnt along the Marwar and Bednore boundaries and the forests of those States are under protection, so that the danger of fire from those quarters is reduced to a minimum, but fire-lines are required in parts of the Todgarh Reserve where the boundary adjoins private forests. The forests of Merwara also contain a large quantity of grass and dry wood so that the damage from any fire that occurred would be much greater than in Ajmere. The average area burnt during the last eleven years is only 84 acres per annum. Before that time there were several large fires, and during the last two years the whole area has been successfully protected.

54. Porcupines in some of the Reserves do a great deal of damage to Salar and Nim by eating off the bark and sometimes girdling and killing the trees. Annas 6 per head is given for their distruction and last year 63 were killed. Their holes are watched at night and they are shot as soon as they come out. The damage is done chiefly in February and March when the sap is rising.

System of Management.

55. When these forests were first taken up the idea was that the protection of these areas would increase the supply of wood and grass and would improve the water supply in the wells and tanks. The difference in the condition of the growth inside and outside the forests is now very marked and grass is abundant.

56. The methods of utilising the different forest products will be treated in the following order :

(1) Timber.

(2) Firewood.

(3) Charcoal.

(4) Bamboos.

(5) Grass.

(6) Grazing.

(7) Minor produce.

No extraction of produce or grazing is allowed in any of the Reserves during the 4 monsoon months, June to September.

57. *Timber.* It has been mentioned above that owing to the abundance of building stone all over the district, timber is not used much for building purposes. and except in South Merwara, where transport is difficult, very little timber is available. However there is a demand for small poles and posts and for this purpose the branches of Dhokra are used. The forests are required to yield timber for the right-holders and for the surrounding population.

58. Timber is given free to the right holders on the following conditions:— The right-holder must be the owner of cultivated land, the wood must be used

for *bona fide* household or agricultural purposes and not for sale, the right-holder must certify that he has not received any free grants of wood during the three preceding years. If all those entitled applied for wood the forest would be unable to meet the demand. No estimate can be given of the amount of this demand, but it may be stated that 4530 cubic feet of wood are supplied free annually, valued at Rs. 225. Wood is issued from the following Reserves only where it is available in sufficiently large quantities.

In Ajmere.—Nagpahar, Taragarh Valley.

In Merwara.—Todgarh, Dewair, Beliawas, Anspahar, Chang and Sheopura. In each case a permit is issued which authorizes the holder to cut from certain selected localities pointed out by the forester in charge. In Ajmere wood is not often applied for and seldom given, but in Merwara it is granted freely from most of the Reserves. Right-holders in other Reserves can obtain wood from the Reserves mentioned above on payment of $\frac{2}{3}$rd the current selling rates.

59. Timber for others than right-holders is sold from the same Reserves, the purchaser being given a permit which enables him to remove timber from the portion of the forest pointed out by the forester. About 3,095 cubic feet are removed annually, valued at Rs. 132.

60. *Firewood* may be either green or dry. Dry firewood was formerly sold by public auction of whole Reserves. But the system of issuing permits for the removal of headloads or donkeyloads has been introduced by the present Forest Officer and is found to be much more profitable. As regards green firewood two systems are in force, the first in Ajmere and the second in Merwara. In Ajmere a certain number of acres are put up for sale and tenders are invited. The contractor whose offer is accepted then enters into an agreement in writing to (*a*) remove all the produce from the forest before a certain date, generally the commencement of the rains. If this condition is not adhered to, whatever produce remains is confiscated. (*b*) To clean fell the area leaving a few standards, if any have been marked, and such trees as Nim, Pipal, Bar. (*c*) To cut the trees flush with the ground. (*d*) To shape the stools in such a manner as to encourage the springing up of coppice shoots. This system was started in 1883-4 and the areas were at first sold by auction, but the method of inviting tenders has been adopted lately.

61. In Merwara there is a different system. Coppice fellings were started here in 1884-5 and the operations were at first carried out departmentally, the Forest Department cutting the wood and a contractor removing it on camels. Departmental operations ceased in 1887-8 because the contractor agreed to cut and remove the wood himself. The contractor buys the wood in order to supply the demand of certain Cloth and Cotton Mills at Beawar, who will not take wood under 3 inches in diameter. He is, therefore, unwilling to remove the smaller stuff which is all cut and removed by the contractors in Ajmere. In Merwara the system of selling a certain area with all that it contains has not been followed. Instead of this the contractor enters into an agreement on the same terms as in Ajmere to remove a certain number of camel loads from a certain area. He only cuts the larger pieces and will remove such species as Koulai, Ber, Jhinja, Salepan, and Kakera and also Kumta, if it does not form more than $\frac{1}{3}$rd of the total quantity of wood to be cut. By this system it is clearly to the advantage of the contractor only to remove the better pieces and to leave all the inferior material, but as regards the improvement of the forest it is principally the latter that it is desirable to cut. It would, therefore, be better to adopt the Ajmere system in Merwara, *viz.*, to sell a certain area with all that it contains with the proviso that everything except the standards shall be clean felled. It has been found by experience that May and June are the best months for coppicing. When the fellings have been completed the area is surveyed in order to determine the number of acres that have been cut, and it is marked off by a line of stone pillars. Near the boundary of the cutting a board is fixed on which is painted the year in which the fellings took place.

62. The experiment was tried of selecting an area and allowing the villagers to remove green wood by permits, but they were unwilling to do so.

63. Coppice fellings require to be carried on over much larger areas than at present. The forest growth is poor but will be improved by such operations, and fuel is scarce and dear, so that all the produce should be saleable from the Reserves near Ajmere and Beawar.

64. The following statement shows in what reserves felling operations have taken place, the area cut, and the price realised :

No. of Coupe.	Year.	Area cut.	Outturn.		Net amount realised.	Rate.		Remarks.
			Firewood	Charcoal.	Rs.	At	Per	
				Mohwabir.				
1	1883-84	14	Information not		62	...	...	Cut and removed by purchasers.
2	1884-85	10	Available		78	...	...	
3	1885-86	8			60	...	...	
4	1886-87	17			90	...	...	
5	1887-88	16	,,	,,	177	...	..	Includes the price of 8 acres in Madar Hill.
6	1888-89	11			80	..	...	
7	1889-90	8	,,	,,	84	...	...	
8	1890-91	10			85	..	...	
9	1891-92	9	,,	,,	70	...	...	Average price 7/4 per acre.
10	1892-93	6			60	...	...	
				Madar Hill.				
1	1887-88	8	,,	,,	60	...	...	Price included in Mohwa Bir.
2	1888-89	6			52	...	...	
3	1889-90	7	,,	,,	60	...	...	Average price 8/3 per acre.
4	1890-91	8			60	...	...	
5	1891-92	...	,,	,,	Not sold	...	..	No demand.
				Nagpahar.				
1	1883-84	14	,,	,,	135	...	...	Cut and removed by purchasers.
2	1884-85	19			335	...	...	
3	1885-86	18	,,	,,	207	...	...	
4	1886-87	14			430	...	...	
5	1887-88	58	,,	,,	281	...	..	Average price 14/8 per acre.
6	1888-89	37			905	...	...	
7	1889-90	20	,,	,,	340	...	...	
8	1890-91	26			180	Puskar side.	Kotra side.	
9	1891-92	20	,,	,,	460	10/	8/	
				Chang.				
1	1885-87	91	21304	...	601	20/	100 mds.	By Departmental Agency.
2	1887-88	109	56864	...	1432	,,	,,	,,
3	1888-89	81	26625	...	314	25/	,,	,,
4	1889-90	78	36875	...	1500	/9/7	Camel load.	By purchasers.
5	1890-91	83	35000	...	1500	/9/9	,,	Average price 12/ per acre.
6	1891-92	...	Not	sold	...	...	...	No demand.
				Todgarh.				
1	1884-85	109	,,	1128 mds	1259	...	...	By Departmental Agency.
2	1885-86	106	2880 Camel loads		680	/7/	Camel load.	,,
3	1886-88	176	4880 ,,	,, 254	1160	/8/3	,,	,, average.
4	1888-89	91	3000 ,,	,,	1047	/5/7	,,	By purchasers ; price 10/ per acre.
5	1889-90	133	4299 ,,	,,	1500	/5/7	,,	,,
6	1890-91	89	4174 ,,	,,	1500	/5/9	,,	,,
7	1891-92	...	Not	sold	...	...	...	No demand.

65. *Charcoal.* At present no charcoal is manufactured in these forests. In 1887-8 and previous years charcoal was made departmentally in the Chang and Todgarh Reserves and sold. In south Merwara permission might be given to burn charcoal in the forest as there is great difficulty about the transport of fuel and timber. The charcoal of course would combine a greater value in a smaller bulk.

66. *Bamboos.* The available quantity of bamboos is very small. They are sold by the hundred from the following Reserves where they are found to a considerable extent.

In Ajmere—Taragarh Valley and Nagpahar.

In Merwara.—Todgarh and Dewair.

The bamboos are cut by purchasers who leave at least one knot above ground. The current year's shoots are not touched. Green bamboos are principally used, dry bamboos sell at $\frac{1}{2}$ their price. The bamboos are used for basket work and those from Nagpahar for making walking-sticks.

67. *Grass.* The increased supply of grass must be regarded as one of the chief advantages derived from the protection of these Reserves. In the Ajmere District most of the grass is cut and removed by the right-holders, either for consumption or sale. In Merwara this is only the case in a few instances, and much of the grass produced remains uncut. It is very important that an effort should be made to induce the people of Merwara to cut grass and use it outside the forests. Grass is not allowed to be cut for three years, where fuel cutting have taken place nor where sowings have been made until the seedlings are sufficiently established not to require protection against the summer heat nor the winter cold. There are certain areas which belong exclusively to Government, i.e., in which no rights exist. From these areas the grass is either sold by auction, or cut on shares departmentally, which means that the grass-cutter is given $\frac{2}{3}$ of the grass he cuts instead of payment and $\frac{1}{3}$ is taken by the Forest Officer and stored for sale.

These areas are as follows :—

1.	Mohwa Bir and Madar Hill ...	967 acres.	
2.	Nagpahar...	1307 „	Western slope.
3.	Taragarh Valley	„ „	Specially reserved portions.
4.	Danta	24 „	Bed of the tank.
5.	Jalia	37 „	Whole Reserve.
6.	Balad	13 „	„ „
7.	Chang Gate Bir	49 „	„ „
8.	Dilwara Bir	232 „	„ „

68. During the last few years a system has been introduced by the present Forest Officer of taking one headload of grass from each right-holder. This grass is stacked and supplied to officers on tour, or to troops passing through the District; and whatever remains at the end of the year is sold.

69. In 1889-90 and some previous years grass was supplied departmentally to the Police and Military Departments.

70. A silo was constructed in 1884-5 in the Ajmere Nursery and fodder was stored in it in August. It was *opened in March* in the presence of the headmen of the villages round Ajmere. "The meeting was large and very conservative, and nothing could convince them of the utility of the measures adopted."

71. *Grazing.* From the *time when they were first reserved until 1882-3* all the forests were closed to grazing. By the advice of two competent Forest Officers, Messrs. Moir and Fernandez, who jointly inspected these forests in 1881, Todgarh, Dewair, and Beliawas were opened to grazing, these three forests being considered sufficiently advanced to admit of it. Since then grazing has been more generally allowed in certain years than in others owing to the unexpected scarcity of fodder, and in 1892 thousands of cattle that would otherwise have perished were thereby saved. During the last five years from the 1st March to the beginning of the rains the cattle of right-holders and others, who either live in the same villages or help in burning the fire-lines, have been admitted for grazing into all the Reserves on payment of the following fees :—

Right-holders	/2	per	cow	/4	per buffaloe.
Others	/4	„	„	/8	„ „

These rates are *too low and might be doubled.* All sites of fires are closed to grazing for 3 years and of plantations and fellings until the jungle has grown up. Grazing passes are issued by the Forest Department and the dues are levied in cash. Formerly such passes were issued by the Tehsil Department and the fees were collected by them as arrears.

72. The following table compiled from the annual reports gives a brief history of grazing since its commencement :—

Year.	Reserves open for Grazing.	No. of cattle admitted.	Remarks.
1882-83	Todgarh, Dewair, Beliawas.	4,878	
1883-84	Do. do.	5,279	
1884-85	All the Reserves.	13,086	Scarcity.
1885-86	Todgarh, Dewair and Beliawas.	6,268	
1886-87	Todgarh, Dewair, Beliawas, Kotra, Anspahar.	7,589	
1887-88	All the Reserves.	36,259	Scarcity.
1888-89	„ „	16,292	„
1889-90	„ „	14,684	„
1890-91	„ „	26,359	„
1891-92	„ „	47,989	Famine.

73. In the southern part of Merwara grazing dues are levied on banjarás cattle which cross through the Dewair Pass with salt or other goods from Marwar and Meywar.

The following rates are charged :—

Per bullock, buffaloe, donkey or pony	1 pie.
,, Camel, sheep, or goat	3 pies.

A Moharir on 7/ has been permanently sanctioned to collect the dues.

74. The grazing of certain villages and hamlets has been mentioned above in paras. 52, and 41.

75. *Minor Produce.* Mango fruits from the Pushkar Bagh contribute chiefly to this source of revenue. The fruit is yearly sold by auction before the crop is ripe. Honey and wax also sold by auction are of the next importance. It is collected by Bhils who receive $\frac{1}{3}$ of what they collect instead of payment, the remainder $\frac{2}{3}$ is sold by auction by the Forest Department. In years of famine Salar and Dhak leaves are extensively used to feed cattle.

Special Works of Improvement.

76. *Fences.* Owing to the difficulty of preventing the trespass of cattle many of the Reserves have been fenced in either by Euphorbia hedges or by stone walls. 131 miles of forest boundary have thus been fenced. The Thor hedges do not succeed on very stony ground, but on suitable soil they require repairs during the first three or four years only, and once thoroughly established, they last for a long time. Fences are made by planting cuttings 3 feet long in two or three parallel lines. The cuttings are placed in small holes about 6 inches deep and about 1 foot apart, within the lines which are about 2 feet apart. The cuttings which should be fresh should be planted in March and April. It has been proved by experience that Thor fences planted in the cold weather or the rains do not succeed at all. These hedges cost Annas 6-8 per 100 running feet. On stony ground walls 3 feet high and 2 feet wide have been built of loose stone work. These walls cost $2\frac{1}{2}$ to 4 Rs. per 100 feet, but they are permanent and only require repairs now and then. The repairs to these walls cost Annas 7-9 per 100 feet but they are generally done without cost by the forest guards.

77. *Inspection paths.* 58 miles of inspection paths have been made in the following Reserves;—

In Ajmere.—Nagpahar		1	Miles.
	Taragarh Valley	3	,,
In Merwara.—Todgarh		30	,,
	Beliawas Anspahar	14	,,
	Kotra	3	,,
	Chang	1	,,
		58	

Some of these inspection paths with a little alteration could be used as roads. They are in a very bad state at present and should be repaired annually instead of only every 5 or 6 years.

78. *Bunds.* In some of the Reserves small bunds of loose stone work have been built across the smaller ravines and nullahs in order to retain the silt. When sufficient silt has collected they are planted up.

Sowings and Plantings.

79. It has been mentioned in para 17 that sowings and plantings are carried on in these Districts under great difficulties. Three nurseries are maintained. Two in Ajmere at Pushkar and Bir, and one in Merwara at Seedra. A fourth is being made at Jalia in order to stock two small areas below the bunds of the Balad and Jalia tanks with Shisham, &c. The cost of these nurseries is about 850 per annum and is made up of the pay of 4 malees, 7 bhistees, 1 boy, and the feed and keep of 6 bullocks and 2 buffaloes.

80. Planting operations have been going on now for about 20 years, and the results show that Sissoo is the only species that has succeeded and then only when planted on suitable soil and watered for two or three years. All other planting operations are practically failures, though one or two hundred mango trees are alive in the Nagpahar and Taragarh Valley Reserves. These remarks do not apply to the planting operations of the last one or two years, because the plants are still being attended to, and there has not been time to judge of the results.

81. Sowings have been more successful, but only with indigenous species. The following kinds have been found to do best:—Khair, Khejra, Arinja, Ber, Koulai, and Kumta, but the last species should not be sown as the wood is very inferior. The method of sowing in patches gives the best results. Sowing in hori-

zontal trenches broad-cast, and in other ways has been tried. Seed has been sown on mounds 2½ feet high and 2½ feet diameter on sandy soil, but sowings in ditches or holes would be better. Successful results have been attained in fixing the shifting sands in the Makarwali Reserve. Munj grass is first planted at distances 5 feet apart and seed is dibbled in at the roots. The seedlings manage to survive under the shelter of the grass.

82. The following information about the different species that have been sown or planted may be useful.

Mango, Mohwa and Jaman.—Have been planted extensively, but the plants suffer from drought. A few mangoes are alive.

Raintree and Misquit Bean.—Experiments show that these species will yield no useful results.

Dodonaea Viscosa.—Not likley to succeed on the dry rocky hills of Ajmere and Merwara. It requires careful watering even as a hedge plant.

Other Exotics.—Have all failed. A great many have been tried.

Kalia.—A plantation in Sheopura was watered, but eventually all the plants were killed by frost. Sowings have been unsuccessful.

Sandal.—A few plants 2 feet high were put out in Mohwa Bir under the shade of other trees. A few are alive and doing well.

Bahera and Cherril.—Planted but unsuccessful.

Nim.—Seed dibbled in under thor bushes grows well.

Arua.—Sown on sand as recommended by Brandis, but the seed did not germinate. Plants 1½ feet high planted in the same place have died.

Salar and Tamarin cuttings.—Have not done well.

Bamboos.—Cuttings planted in the forest have done well when only one knot is left above ground. Cuttings 6 feet high or more have failed.

Khajur.—Sown in the forest is doing well. The plants do not suffer from frost or drought.

Babul.—Seedlings suffer from frost, and on the banks of nullahs from excess of moisture during the rains. There is a sprinkling of babul in some of the Reserves due to sowings of former years.

Arinja, Khejra.—Sowings give good results when the soil is not too dry. Seed has been sown under thor, but will not grow in such positions.

Khan.—Has been sown extensively in the Kotra Reserve, and the results are on the whole fairly satisfactory. This species should be sown everywhere.

Koulai, Bir, Kumta.—Sowings very successful.

Shisham or Sissoo.—Has only succeeded when raised in the nursery and planted in valleys and other moist places and watered for two or three years. It has stood the severest drought, while other species have invariably failed. Three years old transplants establish themselves in the course of a year. In all transplanting operations it has been found necessary to treat the plants carefully in the nursery and to bed them out once, and if possible several times, before planting in the forest. Strong plants with the top root cut back several times succeed best. It is also found to be necessary that the plants should not be less than 2 feet high.

The above shows that it is useless to continue the planting of any species but Shisham and Bamboo, and that the latter can be planted directly in the forests.

83. The average annual expenditure on plantation work during the past 10 years is Rs. 3,400 and a revenue of Rs. 200 is derived from the sale of young plants and of Rs. 400 from fruits.

Revenue and Expenditure.

84. The following statement shows the Revenue and Expenditure for the last 10 years :—

Year.	1882-3	1883-4	1884-5	1885-6	1886-7	1887-8	1888-9	1889-90	1890-91	1891-92	Avge. of 10 years.
					Revenue.						
Timber...	...	...	...	33	135	101	128	174	71	186	83
Fuel	2,472	2,420	4,013	4,809	5,389	5,350	5,464	5,627	5,063	2,888	4,353
Bamboos	66	3	64	53	64	53	274	197	96	209	108
Grass? ... }	3,720	4,600	5,266	3,322	4,393	7,524	5,950	4,177	7,875	14,046	6,087
Grazing ... }											
Minor produce ...	242	616	470	717	498	319	568	377	948	1,330	608
Miscellaneous... ...	626	559	613	766	795	937	1,189	1,040	1,213	1,142	888
Total ...	7,126	8,198	10,456	9,697	11,274	14,293	13,573	11,592	15,266	19,799	12,127
					Expenditure.						
Timber works... ...	156	470	898	1,277	1,793	1,697	553	5			686
Plantations	3,525	3,518	4,213	2,877	6,477	4,177	2,257	1,423	2,763	2,916	3,415
Miscellaneous... ...	8	102	63	56	11	14	122	16		6	40
Total A ...	4,689	4,099	5,174	4,210	8,281	5,888	2,932	1,444	2,763	2,922	4,140
Total B ...	7,595	10,475	11,142	12,259	12,463	13,010	12,744	11,257	9,957	11,064	11,197
Total A+B ...	11,284	14,574	16,316	16,469	20,744	18,898	15,676	12,701	12,720	13,986	15,337
Surplus...	...	...	...	...	...	...	...		2,546	5,813	...
Deficit	4,158	6,376	5,860	6,772	9,470	4,605	2,103	1,109			3,209

85. The above shows that there has been an average deficit of Rs. 3,209 during the last 10 years. There has been a surplus the last two years and expenditure is kept as low as possible in order to obtain it. The largest revenue is obtained from fuel, grass, and grazing, and of the expenditure

22 % is spent on plantation work.
73 % „ „ establishments.
5 % „ „ everything else.

The expenditure is too low. Funds are required for opening out the forests by roads, for clearing the boundary lines of trees and shrubs, and for other works of improvement. But until some means of increasing the revenue is devised the expenditure cannot well be increased.

Marketable Products.

86. The following are the chief marketable products :—

(1.) *Small Timber.* Dandas, Ballees, Thambas, &c., for roofing and other purposes. Dhokra wood.

Kalia „
Khair „

Larger wood can be obtained in South Merwara.

(2). *Firewood* green or dry. Dhokra, makes excellent fuel and is preferred to all other kinds. Dhokra, Khair, Babul, and Koulai are the best woods for fuel in these Districts, but Kakera, Jhinja, and many other species are also used. Salar wood is not liked because it gives out much smoke in burning, and Kumta decays soon and is liable to the attacks of insects. In Ajmere dry wood of all kinds and even dry Thor is used for fuel.

(3). *Charcoal.* The best is made from Dhokra, Khair and Babul. Salar might be utilized for this purpose.

Dasan charcoal is used by goldsmiths.

(4). *Bamboos* for basket work and sometimes for roofing. Those of Nagpahar for walking-sticks.

(5). *Grass* for fodder and Munj grass for thatching and making ropes.

(6). *Minor Produce.*—Mangoes and plantains are sold from the Nurseries; Dasan, Ber, Gangan and other fruits from the forests.

Honey and Wax.

Leaves of Dhak and Salar for feeding cattle.

Babul pods for sheep and goats.

Bark of Dasan and leaves of Goliadhan for tanning.

Limestone and slabs for building.

Clay.

Root fibres of Dhak and back of Gol for ropes.

87. The following statement shows the average amount of produce removed annually from the forests :—

Description of Produce.	Departmental Agency.		Purchasers.		Free grants.		Right-holders.		Total.	
	Qty.	Value Rs.	Qty.	Value Rs.	Qty.	Value Rs.	Qty.	Value Rs.	Qty.	Value Rs.
Timber	...	...	3,095C.ft.	132	4,526	224	...	...	7,621	356
Fuel	16,677	791	1,42,311 ,,	4,089	14,686	103	...	...	1,73,674	4,983
Bamboos ...	...	...	8,457 ,,	166	...	...	...	...	8,457	166
Grass	...	...	...	2,838	...	51,059	...	...	...	53,897
Grazing	...	...	...	913	...	972	...	4,749x	...	6,634
Minor produce ...	...	...	..	817	...	...	...	...	...	817
Total ...	...	791		8,955		52,358		4,749		66,853

Export Lines.

88. In Ajmere there are metalled roads passing near or through all the Reserves, so that there will be no difficulty about transport. Inside the Reserves temporary camel paths will be made each year to the places where felling operations are going on. In the northern part of Merwara there is also no difficulty. A road passes between Chang and Borwar and also the railway line with stations at Sendra and Haripur. Another passes between Borwar and Kotra, and a third to the east of the Kotra Reserve. Three roads pass respectively near the north, south, and through the centre of the Sheopura Reserve. A road approaches the Anspahar Reserve as far as Sheopura Ans, and the inspection path passing through this and Beliawas Reserve can be used as a road. Two country roads pass through the Amner Reserve near the Amner and Ajitgarh tanks. The road from Beawar to Todgarh passes near the north and to the east of the Banjari Reserve, and an old road from Todgarh to Bhim through the centre. It is in the Todgarh and Dewair Reserves that the difficulty of transport arises. The main

N. B.—x. This is revenue.

The free grants are given to the right-holders

There have been no Departmental operations for the last three years.

road from Beawar to Dewair through Todgarh runs parallel with these Reserves and one to four miles to the east. A road has lately been made along the Dewair Pass to the foot of the hills in Marwar, whence there is a cart road to the Bhimalia Railway Station. A road has also been made lately from Jewaja to Kalalia which is distant about two miles from the northern end of the Todgarh Reserve. It would be very advantageous if this road could be continued into or up to the boundary of the Todgarh Reserve. But it is recomended that a road be made along the course of the Chipi Devi Nal, which passes through the the centre of the Reserve, extending to the Sujat Road Railway Station on the west and on the east joining on to the Beawar Todgarh Road. Such a road would tap the best portion of the Reserve, and temporary roads could be made from it to the places where fellings are going on. A portion of this road on the east side was made as a famine relief work, but by the time the construction had reached a point about one mile from the Reserve the famine was over and it was not carried any further. The estimated cost of the portion through the forest is Rs. 2,000-3,000.

Markets.

89. The principal markets are Ajmere with a population of 68,843 and Beawar with a population of 20,978, both situated on the Rajputana-Malwa Railway. Nasirabad is another large town, but it draws its supplies from the forests of Neemuch and Chittore, with which it has direct railway communication. In Ajmere all the forests are close to the town of Ajmere, the furthest being 8-10 miles distant by road. In Merwara Dilwara Bir and Chang Gate Bir are close to Beawar, Chang is 4 miles distant, Borwar and Kotra about 8 miles, Sheopura 9 miles, Todgarh 20 miles, and Dewair 50 miles. The position of the different Reserves is shown on the map.

90. The supply and demand of the various forest products will be treated in the following order :

(1) Large timber.
(2) Small.
(3) Firewood.
(4) Charcoal.
(5) Bamboos.
(6) Grass.

1.) *Large timber* does not grow in the
ported from other districts or obtained fr
e borders of tanks.

(2.) *Small timber* is required by the villagers for roofing, for well work, agricultural implements, and other purposes.

The demand is not very great. It is met from the reserved and unreserved tracts of Merwara, but the latter source is almost exhausted. The villagers use dandas of Dhokra, the Government rate for which is ½ anna each, but the villagers can only sell them for ½ anna, so they obtain them from their village lands and put up with inferior articles. The rate should be lowered and a great many would probably be sold. There is a large demand throughout the Districts for Khair wood for well work and also in the form of small planks. At present this demand is not met from the forests, because it is desired to increase the spread of this species every where by the growth of natural seedlings; a few might be cut here and there provided that one or two per acre were left to furnish seed.

(3) *Firewood.* The price of fuel in Ajmere and Beawar is high. It is estimated that the following quantity of fuel is consumed annually :—

In Ajmere ...	70,000	mds.
,, Beawar ...	20,000	,,
By Cotton and Cloth Mills at Beawar ...	1,10,000	,,
In Nasirabad..	20,000	,,
By Commissariat and P. W. Department ...	80,000	,,
	3,00,000	

About half of this demand is supplied by the Forest Department. The other half is imported from neighbouring Districts or obtained from Babul trees growing in the fields or from village lands. The latter source is now almost exhausted. The Forest Officer has been asked to supply the mills at Beawar, but at present there is difficulty about carriage. In time contractors will probably be induced to undertake this work. The mills require wood between 3 inches and 9 inches in diameter. They will take larger pieces, but they require to be split and fetch a lower price.

(4) *Charcoal.* There is a large demand for charcoal at Ajmere, Nasirabad, and Beawar. The two former towns draw their supply from the forests of Chitor and Neemuch, and Beawar from the unreserved tracts of Merwara. This

supply is nearly exhausted and the Forest Department will be called upon to meet the demand. The total consumption is about 45,000 mds. per annum, and it sells in the bazaar at 35-40 seers per rupee. No charcoal is made at present in the Reserves. This should be done.

(5) *Bamboos.* There is a moderate demand for bamboos both in the principal towns and in the districts for basket and wattle-work and for roofing. The supply for Ajmere is drawn principally from the Sirohi and Meywar forests. A few are also available in the Taragarh valley and Nagpahar Reserves. More bamboos could be sold if the price were lowered. In Merwara bamboos are sold to the Bhils from the Todgarh and Dewair Reserves, who make baskets and sell them to the villagers. Only the shoots one year old are utilised.

(6) *Grass.* There is a large demand for grass. In ordinary years with an ordinary rainfall there is plenty of grass everywhere on private and village lands. In famine years it has to be imported from the adjoining Native States of Ulwar, Jeypore, Bhartpore, and Odeypore. Large quantities are always available from certain areas in the Government forests. The following shows the amount of grass produced and consumed annually in the forests :—

	Mds.
Total quantity grown in an average year.....	11,12,000
Quantity removed by right-holders and others ...	8,21,340
Sold from areas free of rights..... 25,000	
	8,46,340
Balance...	2,65,660

Method of Extraction and Cost.

91. The produce is conveyed to the markets by the roads mentioned above by cart-loads, camel-loads, donkey-loads or head-loads. The produce is removed from the Todgarh Reserve by camel-loads along the footpaths and taken to the Hariapur railway station, whence it is conveyed by rail to Ajmere or Beawar. Very little produce is extracted from this Reserve at present because there are no roads.

92. Departmental operations have not been carried on for the last two or three years, but the following gives the average cost and net profit per camel-load (6 maunds) of such operations as have taken place.

	Fuel.	Charcoal.	Grass.
Selling price per 6 mds. ...	As. 7 5	5/0/7	2/2/6
Cost of extraction „ „ ...	„ 3 4	2/15/4	0/6/0
Net profit „ „ ...	„ 4 1	2/1/3	1/12/6

Note.—A camel-load of grass is 2 maunds and not 6 maunds.

The fuel was cut departmentally and removed by a contractor. The lowest price now paid by the contractors is annas 5-6 per camel-load and he cuts and removes the wood himself, so that the present system is more profitable than the former departmental working. The charcoal was manufactured and delivered to the Rajputana-Malwa Railway. The grass was cut and delivered to the Police and Military Departments.

Net price realised for the produce.

93. The selling rates of different classes of forest produce is given below.:—

Timber.—Dandas (up to 7" girth) Annas ½ each.
Ballees (above 7" & up to 1' girth) „ 4 „
Balindas (above 1' & „ 1' „ 6") „ 8 „
Thambas..... „ 4 „
Firangan Kamris..... „ 1 „
Dry salar..... „ 1 „
Green do. and Kartrees..... „ 4 „

Firewood.—Green wood is sold standing to purchasers at the following rates :—

In Mohwa Bir 8/ - per acre
„ Madar Hill 6/ - „ „
„ Nagpahar
Pashkar Side 10/- „ „
Kotra „ 8/- „ „
„ Chang -/9/9 „ Camel load.
„ Bagri -/5/9 „ „ „

Dry wood and Thor is sold by permits at different rates (a) From forests with in a radius of 8 miles from the towns of Ajmere and Beawar

-/-/9 per man, -/-/6 per woman, -/-/3 per boy

From other forests.

-/-/1 per head-load -/1/3 to -/2/- per donkey-load.

Bamboos.—Todgarh and Dewair Reserves 2/1/4 per hundred.
Nagpahar and Taragarh Valley 6/4/- „ „

Grass.——Fodder grass is sold by auction.
Munj grass -/3/- per head-load.

Minor produce—Mangoes by auction.

Honey and wax „ „

Leaves of Dhak and Salar -/1/- per tree

Pods of Babul by auction.

Dasan wood -/-/6 per head-load.

Leaves of Goliadho-/-/1 „ „

Limestone -/1/- to -/4/- per 100 c. feet.

Slabs -/6/- per 100 sq. feet.

Clay -/-/6 per donkey-load.

These rates are higher than in the neighbouring forests of Meywar and Marwar, and consequently much produce that could be supplied from the forests of these Districts is imported from those States. It is recommended that the rates for dhandas, ballees, balindas, thambas, and bamboos be reduced. And the rates for green fuel will have to be lowered as it will be necessary to fell much larger areas annually.

The Forest Staff.

94. The charge of these Districts is held by an officer of the lower controlling staff with headquarters at Ajmere. He corresponds with the Commissioner (also ex-officio Conservator), and on all matter affecting the welfare of the people the correspondence takes place through the Assistant Commissioners of Ajmere and Merwara (also ex-officio Deputy Conservator), whose co-operation is necessary for the successful management of the forests.

The subordinate Staff consists of:—

1	Ranger	@ 80/-	Rs 80
6	Foresters	@ 9/- to 19/-	„ 68
39	Guards	@ 6/- to 8/-	256
$\frac{1}{11}$	Moharir for collecting grazing dues		7
			411

95. The following ranges and beats have been established :—

Name of Range.	Number of beats in each Reserve.	Name of Reserves included in the beats.	Area of each beat.	Head quarters of the beats.	Remarks.
1. Ajmere ...	2	Mohwa Bir and Madar Hill ...	1368	Mohwa Bagh and Madarpura ...	In charge of a forester
	2	Makarwali	1338	Kanas and Chunrasiawas.	
	2	Nagpahar	1220	Pushkar Bagh and Hathi Khera.	
	2	Taragarh Valley	613	Nurchashma and Barinal.	
2. Srinagar ..	3	Srinagar	1208	Srinagar, Barlia and Naka...	In charge of a forester
	1	Danta	1429	Danta...	
	2	Rajosi	602	Khandakua and Rajosi.	
	2	Rajgarh	1099	Kotaj and Rajgarh.	
3. Chang ...	1	Dilwara Bir and Chang Gate Bir.	281	Beawai.	
		Jalad and Balia	...		2 bhistees in each.
	2	Chang	1474	Sabalpura and Chang.	In charge of a forester.
	2	Borwar, Kotra, and Silibori ..	2329	Kotra and Baria Lunba.	
4. Beliawas ...	2	Sheopura	1393	Sheopura and Baria Hira	In charge of a forester.
	1	Ansphar	1639	Dungerkhera	
	1	Beliawas	3336	Malkachura	
5. Todgarh ...	2	Amner	2057	Amner and Derra	Under direct charge of a Ranger.
	2	Banjari	2366	Pipalkhet and Banjari	
	7	Todgarh	4,864	Bagri, Serinan, Gaffa, Kakrod. Raoli, Dadalia, Kachbali,	In charge of a forester.
6. Dewair ...	4	Dewair	3,242	Baghana, Undabari, Dhana Biram, and Dewair.	Under charge of a forester. Ranges 5 and 6 are under a Ranger.

The beats are unequal, being smaller in Ajmere where the surrounding country is thickly populated than in the wilder parts of Merwara.

96. The present subordinate staff is inadequate for the efficient management of the forests. Proposals for increasing the Staff have already been submitted to the Government of India for sanction.

Labour Supply.

97. *As much labour as is required can generally be obtained without* difficulty, except when the villagers are busy with the cultivation of their fields. This work lasts from the end of March to the beginning of the rains. Able-bodied men are paid annas 2 a day for felling work, old men annas 1½, and boys anna 1. The villagers look upon the forests as their own property, which the Government is merely managing on their behalf. They are consequently quite willing to do many jobs in the forests without payment, whenever required.

PART II.

Future management discussed and prescribed.

WORKING CIRCLES.

98. It is proposed to divide the forests of these districts into two working circles. This division is based on the consideration of whether the forests can be profitably worked or not, which in turn depends on the distance of the forests from the markets. The forests of South Merwara are 20 to 60 miles distant from Beawar, and as explained above transport is difficult. There are roads near Amner and Banjari Reserves but the crop is not yet grown up. Beliawas is nearer the market, but does not contain much marketable produce except Salar, so that it is proposed to treat these forests under one working circle and to call it the "Grazing Circle." All the remaining forests will constitute a second circle and it is proposed to call it the "Fuel Circle." This circle might be divided into two, one for the Ajmere forests and the other for the forests of North Merwara, or into four, one for each range. But since the method of working would be the same in all, it will simplify matters to treat them together under one working circle.

Sub-division of the Area into Blocks and Compartments.

99. The following statement shows for each working circle the names of the blocks and the number of compartments, where they have been formed, in each reserve.

Name of Reserve.	Name of Block.	Area of Block.	No. of compartments.	Remarks.
	Fuel Circle.			
Mohwa Bir	Eastern Block	992		East of Road.
	Western „	893		West of „
Madar Hill		850		
Makarwali	Makarwali	818		Eastern slope.
	Hokran	1,857		Western „
Nagpahar	Hathikhera	1,071	3	Eastern „
	Pushkar	1,408	3	Western „
Taragarh Valley ..	Nulchasma	348	3	
	Barinal...	570	4	
	Imli Kund	299	4	
Srinagar	Srinagar	1,420		North of Road.
	Barlia	2,203		South „ „
Danta		1,429	2	East and West of Road.
Rajosi		1,303	4	
Rajgarh	Kotaj...	2,054		South of Road.
	Myapur	599		North „ „
Dilwara Bir		232	6	
Chang Gate Bir		49	2	
Julia		37		
Balad		13		
Chang		2,047	6	
Borwat		2,408		
Kotra		1,729	3	
Silibari		520		
Sheopura	Hathum	2,186	3	North of Road.
	Jetakhera	600		South „ „
Anspahar		1,639	6	
	Total Fuel Circle ...	30,483		

Name of Reserve.	Name of Block.	Area of Block.	No. of compartments.	Remarks.
	Grazing Circle.			
Beliawas		3,336	6	
Amner	Nadawat	360		South of Amner Tank.
	Kukra	1,131		„ „ Ajilgarh Tank.
	Ajitgarh	2,600		North of „ „
Banjari	Palri	871		„ „ New *Road*.
	Mandlan	2,738		„ „ Todgarh Bhim Rd.
	Barar...	1,122		South of „ „
Todgarh	Bagri...	3,619		North of Caleb Pass.
	Sirma	5,393		„ „ Bamanhera Charpalian Path.
	Bagmal	10,221		„ „ Modia Pass.
	Raoli	5,875		„ „ Chipi Devi Nal.
	Dudalia	5,312		„ „ Dabgabra Pass.
	Kachbali	3,629		South of „ „
Dewair...	Baghana	4,328		North of Undabari „
	Chaphan	8,739		South of „ „
	Total Grazing Circle ...	59,297		

100. Blocks are the larger areas into which the Reserves have been divided by means of roads, passes, or large nullahs. Some of the Reserves have been further sub-divided into compartments by means of the inspection paths, fire-lines, or foot paths. These blocks and compartments have been formed during the preparation of the present report, and, except in the case of Todgarh and Dewair, do not appear to be altogether necessary. Where convenient roads, paths, or inspection paths, &c., do not exist no attempt has been made to sub-divide the Reserves.

Analysis of the Crop.

101. No analysis of the crop was made as it was considered unnecessary in view of the treatment to be applied, viz., to cut over the whole area as soon as possible so as to improve the growth. It is estimated however that one-half the total area consists of dhokra forest, one-third scrub jungle, and one-sixth salar forest.

Purpose for which the Forests should be managed.

102. From what has been stated in Part I. of this Report it will be seen that these forests must be worked to supply wood and grass to the right-holders, and a certain profit must be derived from the sale of wood and other produce in order to pay the cost of management. In the Grazing Circle cattle will be admitted into parts of the Reserves, but the number must be limited, so that it may never happen that, if the rains fail, the cattle cannot be kept alive for the remainder of the year. In the "Fuel Circle" cattle will be excluded from the Reserves for the present and until the forest has grown up, so that there will

always be a certain reserve of grass and grazing which can be utilised in years of great scarcity. Firewood and charcoal and small timber are required by the surrounding population and will be supplied from the "Fuel Circle," but as before mentioned, large timber cannot be grown in the forests of these Districts. Forest operations were not intended to be directly profitable speculations on the part of Government ; their principal object was an indirect and climatic advantage, to prevent the rainfall rushing down the bare hill-sides, carrying in its course what little soil remains, and to cause it to penetrate into the crevices of the rocks and to fill the springs. The roots of the trees and the vegetation will retain and create soil on the steep slopes, while the lowering of the temperature may ultimately have the effect of causing the clouds which now too often pass over the District to part with their moisture within its boundaries.

103. The proposals for each Circle will now be discussed, the "Fuel Circle" being taken first.

FUEL CIRCLE.

Method of Treatment.

104. The coppice method of treatment introduced in 1883-4 has given very good results and will be continued. At the same time a few standards will be left, wherever possible, in order to furnish seed and larger wood than can be obtained from the coppice. The method of coppice with standards will be thus introduced after one or two rotations by leaving more and more standards at each return of the fellings until the maximum number desired has been obtained.

105. The two small areas, Jalia and Balad, of 50 acres, will be treated as a Babul high forest. The existing crop will be thinned and blanks sown up with babul seed. When the area is fully stocked one acre should be cut annually, afterwards the ground should be ploughed up and babul seed sown.

Exploitable Age.

106. The exploitable age depends on the size of the wood required by the surrounding population. The Mills at Beawar require pieces between 3 inches and 9 inches in diameter; larger pieces are taken but they have to be split. This size 3-9 inches in diameter may be, therefore, taken to be the most profitable size to grow. Coppice fellings have taken place during the last 8 years and the measurements of the shoots show that dhokra, which is the most important species, reaches a diameter of 1-1½ inches in that number of years. It is therefore assumed that at the same rate of growth shoots 20 years old will attain a

diameter of 2½-4 inches. It would probably be more profitable to grow pieces of a larger size, but since it is desirable to cut all the growth as soon as possible a rotation of 20 years has been adopted. In another 20 years data regarding the growth of Dhokra will be more complete, and during the second rotation a longer period can be taken if desired. Inferior species grow faster, but it will prevent confusion if the same rotation is taken for all the forests.

General Scheme of Working and Calculation of the Possibility.

107. As regards the cutting of green wood, the present method of inviting tenders for a certain selected area of forest will be continued and the system of selling a certain number of camel loads abandoned. In Merwara the contractors will make arrangements about the removal of the small stuff, but if they do not remove it, it will be useful as a protection for the soil. The area to be filled each year will be marked on the ground by means of heaps of stones and the produce will be removed from the forests before the commencement of the rains. If the whole area is not cut in one year the balance will be available for cutting in addition to the new coupe in the next year. And if in any year there is no offer, two coupes should be disposed of in the following year. But an endeavour should be made to induce the contractors to cut annually the area that has been marked off. This should always be possible if the rates are sufficiently low and a larger area will be cut than has been the custom hitherto, so that probably in any case the rates will have to be lowered. In other respects the present system will be followed.

108. The method of disposing of timber, dry wood, bamboos, and minor produce will be the same as at present. Timber, however, should be sold from the area which it is proposed to coppice during the following year, but this will not always be possible, because these areas will often contain no timber. More bamboos should be sold than is the case at present by slightly lowering the rates. Probably twice as many could be cut without overworking the forest.

109. As regards grass, the system of issuing permits for cutting grass will be continued. The Revenue Department will furnish annually through the Assistant Commissioners, Ajmere and Beawar, statememts for each village which has forest rights, the names of the right-holders, and the number of ploughs belonging to each. Persons who have no ploughs, but yet are entitled to cut grass, will also receive a ticket which will be available for half the usual period of cutting. The names of these persons will also be entered in the statement. As regards non-right-holders of certain villages, whose assistance is required

in burning the fire-lines, these lists will be prepared by the Forest Department. The method of cutting grass on shares, or selling it by auction, from the parts of the Reserves that are free from rights will be continued.

110. No grazing will be allowed in the forests of this circle for the present and until the crop has grown up, except in years of great scarcity, and this will require the previous sanction of the Local Government. (*Vide* Chief Commissioner's No. 8378, dated March 26th 1892, to the Commissioner, Ajmere-Merwara). However in Ajmere the period during which grass-cutting is allowed might be extended if considered necessary, to enable the villagers to remove all the grass they require.

111. Every year about $\frac{1}{20}$th of the area of each forest or group of forests will be coppiced. Fellings will take place in six different places, or if Jalia and Balad are cut in seven, and for this purpose the forests will be grouped together as follows :—

1. Mohwa Bir.
 Madar Hill.
2. Nagpahar.
 Makarwali. No fellings at present.
3. Taragarh.
4. Chang.
 Borwar.
 Siliberi.
 Kotra. No fellings at present.
5. Sheopura.
 Anspahar.
6. Dilwara Bir.
 Chang Gate Bir.
7. Jalia.
 Balad

Srinagar.
Danta.
Rajosi.
Rajgarh.
} No fellings at present.

112. From the areas that are not to be felled at present owing to the crop being not yet grown up, the removal of dry wood and grass will go on as usual.

113. The crop in all the Reserves, that it is proposed to coppice, is of practically the same age with the exception of Siliberi. But it is calculated that when its turn comes to be felled it will be sufficiently grown up to be coppiced. Consequently the arrangement of the cuttings is of little importance and can be carried out in whatever way is most convenient. It has been explained that the crop is generally open, at the end of 20 years it will become normal as regards age-classes, but it is not expected that it will become much denser and this is not desired, because the grass is as valuable as the wood and if the forests become very thick little grass will be available.

Period for which the fellings are proscribed.

114. The exploitable age has been taken as 20 years and the fellings have been proscribed for the same period.

Areas to be felled annually.

115. The size of the cuttings has been determined by dividing the number of acres in each forest or group of forests minus cultivation and very open forests by 20. The cuttings are larger where the growth is poorer and *vice versa*.

116. The average area to be cut annually will be as follows :—

Mohwa Bir... ... / Madar Hill... ...	135 Acres.	
Nagpahar	82 Acres.	
Taragarh Valley ...	40 Acres.	The upper 1/3rd of each cutting marked on the map should not be felled.
Dilwara Bir ... / Chang Gate Bir ...	11 Acres.	
Chang / Borwar / Siliberi	296 Acres.	
Sheopura / Anepahar	213 Acres.	
Jalia / Balad	1 Acre.	
	781 Acres.	

117. The order to be followed in making the fellings will be as they are numbered on the maps 1, 2, 3, &c.

118. To prevent mistakes the description of the boundaries of some of the fellings is given in appendix **C.**

Rules regarding the conduct of Fellings.

119. The area to be felled annually will be coppiced. A few trees, where possible, being left as standards. Straight, well grown trees should be selected for this purpose. Kalia, Nim, and shade-giving trees should not be cut, and one or two Dhokra, Khair, Babul, Khejra and Arinja per acre should be left. The Shisham trees that have been planted should not be cut during the present rotation in order to determine what size they will reach. The trees to be left will be clearly marked ; a ring of white paint round the stem will probably be best for this purpose. Attention must be paid to the method of felling to see that the contractors really do cut the trees flush with the ground and that they shape the stools and that they do not cut the wood any how. When the felling operations of the year have been completed, the area felled during the season will be marked

on the ground in the same manner as at present and surveyed and drawn on the maps. The fuel may be converted into charcoal, if desired, provided that the manufacture is carried on in places where there is no danger of the fire spreading to the adjoining portions of the forest. The grass should be burnt round each kiln for a distance of at least 50 feet, and the kilns should not be more than 200 yards apart. The fellings should not commence before November 1st and all fuel and charcoal must be removed from the forests before the commencement of the rains. No trees should be cut where the ground is precipitous, e. g., the upper part of the eastern side of Nagpahar.

Tabular Statement of Fellings.

120. The area to be felled annually is three times as large as has been the case hitherto. Consequently it is not known if all the produce can be disposed of. It was, therefore, considered unnecessary to survey the coupes and they have only been marked on the maps approximately. The area taken from the maps is given in the following statement, but, when surveyed, after being cut, there will probably be a considerable difference.

Year.	Reserve.	Block or Compartment.	Coupe.	Nature of Fellings.	Area to be cut.	Remarks.
1893-4	Mohwa Bir ...	Eastern ...	1	Coppice leaving	112	
	Nagpahar ...	Hathi Khera ...	1	standards	58	
	Taragarh ...	Imli Kund ...	1	where	46	
	Chang ...	I.	1	possible.	230	
	Sheopura ...	Hathum ...	1		193	
	Chang Gate Bir ...	I.	1		7	
1894-5	Mohwa Bir ...	Eastern ...	2	Do.	191	
	Nagpahar ...	Hathi Khera ...	2		77	
	Taragarh ...	Imli Kund ...	2		43	
	Chang ...	II. & IV.	2		288	
	Sheopura ...	Hathum ...	2		194	
	Chang Gate Bir ...	I.	2		12	
895-6	Mohwa Bir ...	Eastern ...	3	Do.	159	
	Nagpahar ...	Hathi Khera ...	3		67	
	Taragarh ...	Imli Kund ...	3		32	
	Chang ...	III.	3		324	
	Sheopura ...	Hathum ...	3		185	
	Chang Gate Bir ...	I.	3		15	
1896-7	Mohwa Bir ...	Eastern ...	4	Do.	114	
	Nagpahar ...	Hathi Khera ...	4		78	
	Taragarh ...	Imli Kund ...	4		58	
	Chang ...	IV.	4		182	
	Sheopura ...	Hathum ...	4		223	
	Chang Gate Bir ...	II.	4		15	
1897-8	Mohwa Bir ...	Eastern ...	5	Coppice leaving	186	
	Nagpahar ...	Hathi Khera ...	5	a few	107	
	Taragarh ...	Imli Kund ...	5	standards	36	
	Chang ...	IV.	5	where	202	
	Sheopura ...	Hathum ...	5	possible.	266	
	Dilwara Bir ...	VI.	5		12	

Year.	Reserve.	Block or Compartment.	Coupe.	Nature of Fellings.	Area to be cut.	Remarks.
1898-9	Mohwa Bir ...	Eastern ...	6	Coppice leaving	119	
	Nagpahar ..	Hathi Khora ...	6	a few	101	
	Taragarh ...	Barinal ...	6	standards	45	
	Chang ...	IV.	6	where	256	
	Sheopura ...	Hathum ...	6	possible.	220	
	Dilwara Bir ...	VI.	6		16	
1899	Mohwa Bir ...	Eastern ...	7	Do.	86	
to	Nagpahar ...	Hathi Khera ...	7		70	
1900	Taragarh ...	Barinal ...	7		50	
	Chang ...	V.	7		231	
	Sheopura ...	Hathum ...	7		300	
	Dilwara Bir ...	VI.	7		18	
1900-1	Madar Hill ...		8	Do.	166	
	Nagpahar ...	Hathi Khora ...	8		80	
	Taragarh ...	Barinal ...	8		39	
	Chang ...	V. and VI.	8		432	
	Sheopura ...	Hathum ..	8		211	
	Dilwara Bir ...	V.	8		12	
1901-2	Madar Hill ...		9	Do.	136	
	Nagpahar ...	Pushkar ...	9		92	
	Taragarh ...	Barinal ...	9		49	
	Borwar ...		9		234	
	Sheopura ...	Hathum ..	9		179	
	Dilwara Bir ...	V.	9		10	
1902-3	Madar Hill ..		10	Do.	95	
	Nagpahar ...	Pushkar ...	10		78	
	Taragarh ...	Barinal ...	10		27	
	Borwar ...		10		247	
	Sheopura ...	Hathum ...	10		221	
	Dilwara Bir ...	V.	10		15	
1903-4	Madar Hill ...		11	Do.	207	
	Naghapar ...	Pushkar ...	11		90	
	Taragarh ...	Barinal ..	11		43	
	Anspahar ...		11		318	
	Borwar ...		11		432	
	Dilwara Bir ...	VI.	11		15	
1904-5	Madar Hill ...		12	Do.	118	
	Nagaphar ...	Pushkar ...	12		70	
	Taragarh ...	Barinal ...	12		44	
	Borwar ...		12		288	
	Anspahar ...		12		316	
	Dilwara Bir ...	V.	12		15	
1905-6	Madar Hill ...		13	Do.	128	
	Nagpahar ...	Pushkar ...	13		78	
	Taragarh ...	Barinal ...	13		38	
	Borwar ...		13		349	
	Anspahar ...		13		267	
	Dilwara Bir ...	V.	13		12	
1906-7						
	Mohwa Bir ..	Western ...	14	Do.	107	
	Nagpahar ...	Pushkar ...	14		72	
	Taragarh ...	Barinal ...	14		45	
	Borwar ...		14		349	
	Anspahar ...		14		183	
	Dilwara Bir ...	I.	14		11	

Year.	Reserve.	Block or Compartment.	Coupe.	Nature of Fellings.	Area to be cut.	Remarks.
1907-8	Mohwa Bir ...	Western ...	15	Coppice leaving	134	
	Nagpahar ...	Pushkar ...	15	a few	104	
	Taragarh ...	Barinal ...	15	standards	36	
	Borwar ...		15	where	266	
	Anspahar ...		15	possible.	235	
	Dilwara Bir ...	I.	15		13	
1908-9	Mohwa Bir ...	Western ...	16	Do.	161	
	Nagpahar ...	Pushkar ...	16		73	
	Taragarh ...	Nalchasma ...	16		58	
	Borwar ...		16		215	
	Anspahar ...		16		168	
	Dilwara Bir ...	I.	16		14	
1909-10	Mohwa Bir ...	Western ...	17	Do.	125	
	Nagpahar ...	Pushkar ...	17		57	
	Taragarh ...	Nalchasma ...	17		43	
	Siliberi ...		17		286	
	Anspahar ...		17		180	
	Dilwara Bir ...	I.	17		18	
1910-11	Mohwa Bir ...	Western ...	18	Do.	132	
	Nagpahar ...	Pushkar ...	18		53	
	Taragarh ...	Nalchasma ...	18		39	
	Siliberi ..		18		234	
	Sheopura ...	Jetakhera ...	18		169	
	Dilwara Bir ...	II.	18		10	
1911-12	Mohwa Bir ...	Western ...	19	Do.	121	
	Nagpahar ..	Pushkar ...	19		39	
	Taragarh ...	Nalchasma ...	19		54	
	Chang ...	III. and IV.	19		351	
	Sheopura ...	Jetakhera ..	19		183	
	Dilwara Bir ..	IV.	19		7	
1912-13	Mohwa Bir ...	Western ...	20	Do.	113	
	Nagpahar ...	Hathi Khera ...	20		78	
	Taragarh ...	Nalchasma ...	20		67	
	Chang ...	I. and II.	20		410	
	Sheopura ...	Jetakhera ...	20		242	
	Dilwara Bir ...	III.	20		12	

Thinnings.

121. The trees in the Balad tract should be thinned at once, and the operation repeated every five years if necessary. In the thinnings all suppressed and dead trees should be removed and a good many of the young trees, because Babul will not stand shade, and to reach a large size requires plenty of space.

Regulation of Rights and Concessions.

122. Grazing will be allowed as at present in the so-called "open forest" of Srinagar. The inhabitants of Mayapur, Naharpura, and Kotaj will be allowed to graze cattle in the portions of the Rajgarh Reserve which were formerly included in their village lands. The cattle of the hamlet of Jaita-ka-Baria will

be allowed to graze over 60 acres of the Sheopura Reserve. It has been explained in para. 52 that the formation of grazing blocks to be opened in rotation is not possible in the case of the two former areas. In the latter case two areas of 60 acres each will be marked off round the hamlet, and grazing allowed in each in turn for a period of 10 years. For the next 10 years grazing will be allowed in the area that has been marked off. In 1903-4 a different area of 60 acres will be marked off and the first one closed, and so on.

123. As regards timber, free grants will be made from the areas which it is proposed to coppice during the following year. The trees that may be cut will be marked by the foresters according to the orders of the Forest Officer, and removed by right-holders on production of the required permits.

Sowings and Plantings.

124. It is doubtful whether planting operations should be continued or not. They are very expensive and funds are much needed in order to carry out other works, such as clearing the boundary lines of trees and shrubs, repairs to inspection paths, erecting pucka boundary pillars, &c. No planting operations are required in Merwara. The nursery which is being formed at Jalia should be sown up with Babul seed, and the nursery at Sendra should be planted up with fruit trees which will bring in a good return. However, the latter nursery is required to furnish plants to the District Boards, &c., for planting up avenues, so that a portion of the nursery should be devoted to that purpose. In Ajmere the sand dunes at Makarwali are being planted up with Shisham. All other suitable places have been experimented upon, so that as soon as the sand dunes have been planted up, all operations of this kind might cease and the nurseries should be stocked with fruit trees. Meanwhile, the plantations of Shisham in the Danta and Srinagar Reserves might be enlarged by planting trees near the existing ones, where the soil is suitable.

No experiments with exotics should be attempted, as the result of former plantings is practically nil. Bamboo cuttings should be planted on a large scale by the forest guards as is done at present, but no nurseries are required for this. The Pushkar Bagh on the Western side of Nagpahar should be stocked with Mangoe trees and also the Mohwa Bagh. Planting operations will thus extend over the following areas :—

Makarwali sand dunes..	600	Acres.
Srinagar near forest chowkies	10	„
Danta along Kanda Kua	10	„
Mohwa Bagh	3	„
Pushkar Bagh	10	„
	633	

When Srinagar and Danta have been planted up, the Bir nursery will be stocked with fruit trees. The Forest Officer states that he cannot plant more than 15 acres a year owing to the difficulty and expense of watering the plants, so that planting operations will not be completed for many years, if it is intended to stock the whole area of the sand dunes.

125. Sowing operations give better results than plantings and do not cost much. The present method of sowing in patches seems to do best and should be continued. Each year only the area that has been coppiced during the previous working season should be taken in hand and all the blanks sown up. Thus at the end of 20 years sowings will pass over the whole area. However, the Reserves that are not to be felled during the present rotation require to be re-stocked and $\frac{1}{20}$th of the area of each should be taken in hand annually. But this would give a larger area than can be managed properly, so that it will be better simply to sow seed on the better kinds of soil and trust to natural reproduction to re-stock the remainder. On the sand dunes the method of sowing seeds on mounds should be discontinued and sowing in patches adopted. The system of dibbling in seed under Munj grass should be continued. The following kinds of seed should be sown :—On moist and level ground Babul; on level ground Arinja and Khejra ; on hilly ground Khair, Koulai, and Jhinja. Khair is the species which it is important to sow as much as possible. Plenty of seed can be obtained in the Amner Reserve and from South Merwara.

126. Sowings therefore will be carried on as follows :—

Mohwa Bir Madar Hill	Blanks in the fellings of the previous season to be re-stocked.
Nagpahar	
Taragarh Valley	
Chang Borwar Siliberi	Do. do.
Sheopura Anspahar	Do. do.
Dilwara Bir Chang Gate Bir	Do. but the seed sown should be mostly Khair.
Balia Jalad	Babul seed to be sown in blanks.
Makarwali	Depressions among the sand dunes to be re-stocked first.
Srinagar Danta Rajosi	Sowings on better kinds of soil.
Kotra	Khair seed to be sown on a large scale.

GRAZING CIRCLE.

Method of Treatment.

127. In this circle the forests are too far distant from the markets to be profitably worked for fuel at present. However coppice fellings are going on at Bagri in the Todgarh Reserve and will be continued under the same system as in the "Fuel Circle." In the other Reserves no fellings will take place at present.

Exploitable Age.

128. The area of the Todgarh Reserve is very large, but the length of time it will take to cut over the whole forest will depend altogether upon the demand. If 1,000 acres can be disposed of annually, which is very improbable at present, 30 years will be the exploitable age. This will be taken as the age at which the crop will be cut when the forests are fully worked.

General scheme of working and calculation of the possibility.

129. The general scheme of working in the Todgarh Reserve will be the same as in the "Fuel Circle." But since grazing is to be allowed arrangements must be made to close the blocks in rotation. Each block, or, when the forest is fully worked, two blocks, will be cut over in 10 years, and when the fellings have been completed the block or blocks will have to be closed for a further period of 10 years to allow the coppice shoots to grow up. In the third period the blocks will be opened to grazing, and in the fourth fellings will recommence. The blocks will be closed for periods of 10 years as follows :—

Half worked	1893-4 to 1902-3	Bagri	(rest.)
		Raoli	(cut.)
	1903-4 to 1912-13	Raoli	(rest.)
		Dudalia	(cut.)
Fully worked.	1913-14 to 1922-3	Dudalia	(rest.)
		Kachbali	(cut.)
	1923-4 to 1932-3	Bagmal	(cut.)
		Kachbali, Bagmal	(rest.)
	1933-4 to 1942-3	Bagri, Raoli	(cut.)
		Bagri, Raoli	(rest.)
	1943-4 to 1952-3	Sirma, Dudalia	(cut.)
		Sirma, Dudalia	(rest.)
		Bagmal, Kachbali	(cut.)

Note.—"Rest" means the forests require 10 years' rest for the coppice shoots to grow up.
"Cut" means that during the 10 years the crop will be cut.

130. It is quite uncertain whether the required amount will be cut or not, but there will probably be no difficulty if the contractors are allowed to manufacture charcoal in the forests.

In any case, after 10 years, if any forest remains to be cut in the Raoli block, it should be left and fellings commenced in the Dudalia block, otherwise there will not be time for the crop to grow up before the block has to be opened to grazing. In the same way, if anything remains to be cut in the Dudalia block after the next period of 10 years, it should be left and fellings commenced in the Kachbali and Mangat blocks, and so on.

131. The method of selling to contractors, &c, will be the same as in the "Fuel Circle."

132. The crop in this Reserve is mature and it is desirable that it should be cut as soon as possible. The arrangement of the age-classes is not important because the whole crop is practically of the same age, except of course where fellings have already taken place.

133. The method of utilising timber, dry wood, grass, and minor produce will be the same as in the "Fuel Circle."

134. As regards bamboos there is a large quantity of dry ones which might be disposed of if they are sold cheap.

135. Grazing will be allowed in rotation over the whole of the forests from the 1st March to the beginning of the rains on payment of the prescribed fees. These have been given above in para. 71. They are too low and might be doubled. In all the Reserves but Todgarh, about one half the area will be opened to grazing for a period of 10 years. At the end of 10 years the first half will be closed and the second opened to grazing, and so on. In Todgarh for the first 20 years two-thirds of the area will be open to grazing. After 20 years one-half, and after 30 years, when the forest is being fully worked, only one-third can be opened to grazing. As regards grazing of right-holders in portions of the forest set aside for that purpose, the villagers of Amner and Ajitgurh will be allowed to graze cattle in the portion of the Amner Reserve called "open forest" as at present. The inhabitants of one hamlet in Beliawas, one in Banjari, and 5 in Todgarh will be allowed to graze cattle throughout the year in the portions of the forest marked off for that purpose. At the end of 10 years a second portion of equal area will be marked off and the first closed. After a second period of 10 years the first should be again opened and the second closed, and so on.

Period for which the Fellings are proscribed.

136. The fellings have been proscribed for the next 20 years, after which period it is expected that the forests will be fully worked.

Areas to be felled annually.

137. The area that can be felled annually is about 1,100 acres, but at pre-nt only 100 acres are cut. The scheme of working has been drawn up on e assumption that 500 acres will be felled annually, and that after 20 years e forests will be fully worked under a rotation of 30 years. Whether 500 acres e cut or not, the fellings will only take place for a period of 10 years at a time each block. The order to be followed in making the fellings will be as they e numbered 1, 2, 3, &c. They have not been marked on the ground because ving to the uncertainty of the demand it was considered unnecessary. The oundaries of the fellings have, however, been clearly marked on the one inch maps.

Rules regarding the conduct of fellings.

138. The rules regarding the conduct of fellings will be the same as in the Fuel Circle." However the forest is well grown up here and more standards hould be left. Twenty to thirty straight, well-grown Dhokra trees per acre, most the Kalia and 10-20 seed bearing Khair trees will not be too many. These trees ust be marked in the same manner as in the other circle.

Tabular Statement of Fellings.

139. The following statement shows the number of acres to be cut in ach year :—

Year.	Area to be taken in hand.		Nature of the Fellings.	Area to be cut.	Remarks.
	Block.	Coupe.			
1893-4	Bagri ...	1	Coppice leaving 20-30 Dhokra standards, most Kalia trees and 10-20 Khair per acre.	294	Remainder of Bagri.
1894-5	Raoli ...	2		441	
1895-6	,, ...	3		614	
1896-7	,, ...	4		665	
1897-8	,, ...	5		486	
1898-9	,, ...	6		621	
1899-1900	,, ...	7		302	
1900-1	,, ...	8		761	
1901-2	,, ...	9		588	
1902-3	,, ...	10		582	
1903-4	Dudalia ...	11		460	Fellings must commence in Dudalia in 1903-4.
1904-5	,, ...	12		326	
1905-6	,, ...	13		218	
1906-7	,, ...	14		320	
1907-8	,, ...	15		627	
1908-9	,, ...	16		486	
1909-10	,, ...	17	Coppice, leaving standards.	448	
1910-11	,, ...	18		256	
1911-12	,, ...	19		537	
1912-13	,, ...	20		275	

The area of the coupes has been taken from the Maps scale 1" = 1 mile, but since the scale is small, until the areas have been surveyed they cannot be considered as perfectly accurate.

Regulation of Rights and Concessions.

140. The statement given below shows the periods for which the several areas will be opened or closed to grazing. The closed portions will form a Reserve to be opened in years of scarcity. The areas have been arranged so as to give each part of the forest a rest of 10 years and in the Todgarh Reserve of 20 years. In the latter Reserve during the first period of 10 years one block will be cut, during the following 10 years it will be closed to grazing, during the third period grazing will be allowed, during the fourth period fellings will again take place, and so on. Any right-holders of the portions of the Reserves that are closed should be allowed to graze in the open portions. But right-holders of one Reserve will not be allowed to graze in another. No more cattle should be admitted than will allow 3 acres being given per head of cattle grazed ; however it will not be practical to make any limitations in this respect.

Todgarh Reserve.

Period.	Blocks opened to grazing.	Area of each block.	Total area.
1893-4 to 1902-3	Sirma	5393	
	Bagmal	10221	
	Dudalia	5312	
	Kachbali	3629	
			24555
1903-4 to 1912-13	Bagri	3619	
	Sirma	5393	
	Bagmal	10221	
	Kachbali	3629	
			22862
1913-14 to 1922-3	Bagri	3619	
	Raoli	5875	
	Sirma	5393	
			14887
1923-4 to 1932-3	Dudalia	5312	
	Sirma	5393	
			10705
1933-4 to 1942-3	Bagmal	10221	
	Kachbali	3629	
			13850
1943-4 to 1952-3	Bagri	3619	
	Raoli	5875	
			9494
	Dewair Reserve.		
1893-4 to 1903-4	Chaplian		8739
1903-4 to 1912-13	Baghana		4328
1913-14 to 1922-3	Chaplian		8739
	Beliawas Reserve.		
1893-4 to 1902-3	I. V. and VI.		1507
1903-4 to 1912-13	II. III. and IV.		1829
1913-14 to 1922-3	I. V. and VI.		
	Amner Reserve.		
1893-1 to 1902-3	Ajitgarh		2600
1903-4 to 1912-13	Nadawat and Kukra...		1514
1913-14 to 1922-3	Ajitgarh		2600
	Banjari Reserve.		
1893-4 to 1902-3	Palri and Barar		1993
1903-4 to 1912-13	Mandlan		2738
1913-14 to 1922-3	Palri and Barar		1993

141. Timber should be utilised from the portions of the Todgarh Reserve which it is proposed to fell during the following year in the same manner as in the " Fuel Circle."

Sowings and Plantings.

142. No sowings or plantings are necessary at present, but bamboo cuttings should be planted in ravines near the tops of hills by the Forest guards in the same manner as at present. In the closed blocks the soil which has become hard by the grazing of cattle should be loosened round Dhokra, Kalia, Khair, and the more important trees to encourage the growth of natural seedlings.

Roads, Buildings and other Works.

143. *Fencing.*—Further fencing cannot be undertaken at present, owing to the absence of funds. The existing stone walls, ditches, and Thor hedges will be repaired annually wherever necessary.

144. *Boundary Pillars.*—It has been explained that where there are no fences the boundary lines are in a rather unsatisfactory state. It is very desirable that in such places the boundary lines should be made permanent. It is proposed therefore, to construct annually in such places 100 masonry pillars of the same description as those already existing in a few parts of the Reserves. It is estimated that the cost of such work will be Rs. 200 annually and it will be continued until all the unfenced Reserves have been demarcated in this way. The existing boundary pillars will be whitewashed and re-numbered with coal tar every three years and repaired annually at the same time as the fences.

145. *Buildings.*—No more new buildings are required at present. The existing ones will be repaired annually before the commencement of the rains.

146. *Roads.*—Temporary camel paths will have to be made every year when fellings are going on. They will be required in Mohwa Bir, Chang, Sheopura, and Todgarh and their estimated cost is Rs. 100. In Taragarh Valley, Nagpahar, and Chang Gate Bir they will not be required.

A road is badly wanted through the Todgarh Reserve to join on to the existing road, where it approaches the Chipi Devi Nal on the one side, and on the other, passing through Marwar territory as far as Sujat Road Railway Station. The cost of the portion of the road through the forest is estimated at Rs. 3,000. This road would tap the best portion of the forest, and a considerably larger quantity of produce than at present could be disposed of. Altogether three roads through the Reserve would be sufficient for the removal of produce from all parts of the Reserve.

147. *Inspection Paths.*—The inspection paths should be repaired annually wherever necessary. At present they are in a very bad state. The cost of this work is estimated at Rs. 5 per mile or Rs. 290 in all.

148. *Fire-lines.*—The cutting of grass from the 10 feet wide guide lines will be taken in hand from October 15th and the burning of the lines completed before the end of February at latest. Cutting and burning are both done without cost by villagers who are permitted in return to remove grass from the guide lines. In the case of forests adjoining the Marwar border, the work of burning the lines will be done simultaneously by this and the Marwar Forest Department. Fire-watchers will be entertained from March 1st.

149. In addition to the existing fire-lines a few others are required.

(1.) In Danta Reserve on both sides of the road passing through the centre of this tract. Distance about 2 miles.

(2.) In Banjari Reserve on both sides of the Todgarh Bhim road. Distance 1 mile.

(3.) In Amner Reserve along the path from Jalpura to Basdi. Distance 2½ miles.

(4.) In Todgarh Reserve from the nullah near Chaja to the Marwar boundary.

150. The following lines require to be cleared to trees and shrubs as the discovery of the boundary line is difficult.

(1.) In Beliawas 2 miles along the Bednore boundary and the existing fire-lines.

(2.) Amner 2½ miles along the Bednore and eastern boundaries.

(3.) Anspahar 5 miles along the Bednore boundary.

(4.) Sheopura along the existing fire-line from Hathum to Shekawas.

(5.) On the Western side of the Todgarh Reserve where it adjoins other forest land.

The lines along the Bednore border should be cleared at once, twenty feet being cut by Ajmere and 20 feet by the Bednore Forest Department. The estimated cost of cutting these 9½ miles at 13 Rs. per mile is 124.

Summary of works of Improvement.

151. The following is a summary of the works of improvement.

1893-4	Julia and Balad ...	Thinning the existing crop. Nursery at Julia to be sown with Babul seed	10
	Fuel Circle ...	Sowing up blanks in the coppice of last year. Khair sowings at Kotra. Sand dunes to be sown with hardy species...	100
		5 acres of Srinagar, 5 acres of Danta and 5 acres of Makarwali to be planted with Shisham	1500
	Grazing Circle ...	Planting Bamboo cuttings	*Nil.*
		Erecting 100 masonry pillars	200
		Repairs to inspection paths	290
	Mohwa Bir, Chang, Todgarh, & Sheopura,	Temporary camel paths where fellings are going on ...	100
	Anspahar ..	Cutting trees on Bednore boundary line	65
1894-5	Fuel Circle ...	Sowings as last year	100
		Plantings	1500
	Grazing Circle ...	Planting Bamboos	*Nil.*
		Ground to be broken up round Dhokra, Khair, and Kalia trees	50
		Erecting 100 masonry pillars	200
		Repairs to inspection paths	290
	Mohwa Bir, Change, Todgarh, & Sheopura,	Temporary Camel paths	100
	Beliawas and Amner ..	Cutting trees and shrubs along the Bednore boundary ..	59
1895-6	Fuel Circle ...	Sowings as before	100
		Plantings of Shisham in Makarwali, 2 acres, plantings of Mangoe in Mohwa Bagh, 3 acres, Pushkar Bagh 10 acres	1500
	Grazing Circle ...	Planting Bamboo cuttings	*Nil.*
		Temporary camel paths	100
		Erecting 100 masonry pillars	200
		Repairs to inspection paths	290
	Sheopura ...	Clearing fire-line of shrubs from Hathun to Shekawas ..	30
1896-7	Fuel Circle ...	Sowings as before	100
		Plantings of Shisham in Makerwali, 15 acres ...	1000
	Grazing Circle ...	Planting Bamboo cuttings	*Nil.*
		Temporary camel paths	100
		Erecting 100 masonry pillars	200
		Repairs to inspection paths	290
		Clearing Eastern boundary of the Todgarh Reserve of shrubs...	50
1897-8 and following years.		As in 1896-7.	

If the sowings are done by the forest guards they will not cost anything. The planting operations should be discontinued as soon as possible and the nurseries stocked with fruit trees. The construction of boundary pillars will at the rate of 100 annually occupy a considerable time. The repairs to inspection paths after the first year will probably be done at a considerably cheaper rate. The temporary camel paths will often not be necessary. The clearing of boundary lines will be completed in about 7 years, but every year the shoots that come up from the stools will have to be cut.

Miscellaneous Provisions.

152. Two journals have been opened one for plantations and the other for fuel cuttings in which each year's results are recorded. However more information is required than is given at present. For example—the plantation journal shows that so many acres were sown by a certain method and so many per cent. germinated. But after the first year it does not say what becomes of the seedlings, whether they have established themselves or have since died. This information which is very useful should be given. Once each year the sowings of the three preceding years should be inspected and the result of the inspection recorded. The same remark applies to planting operations. In the journal for fuel cuttings a record should be kept of the measurement of the growth of Dhokra coppice shoots. These measurements should be taken annually in all the coupes and if possible in the same month each year.

153. A journal as prescribed by the Forest Code should also be kept up showing separately for each block the yield from cuttings, dead wood, minor produce, &c. A portion of this journal should be devoted to a general summary of the year's work, to notes on all experiments and observations made, cost of working, revenue and expenditure, &c., for the forests as a whole.

Changes in the Forest Staff.

154. The present subordinate staff is inadequate for the efficient management of the Forests. The following changes have therefore been proposed and submitted to the Government of India for sanction.

Present Staff.		*Proposed Staff.*	
1	Forest Ranger on Rs. 80	1	Forest Ranger on Rs. 125
		1	„ „ „ „ 50
I.		2	
1	Forester on ... Rs. 19		
4	„ „ „ 10 each.	1	Forester on ... Rs. 20
1	„ „ „ 9 „	4	„ „ „ 15 each.
6		5	
39	Forest Guards on Rs. 6 each.	41	Forest Guards on Rs. 6 each.
46	Total subordinate establishment.	48	

These changes will involve an extra outlay of Rs. 119 per mensem.

155. It has been proposed to make the forests of the Beawar Tehsil into a separate range and a second ranger has therefore been applied for.

Forecast of Financial Results.

156. It is impossible to give the forecast of revenue with any certainty. But if the areas mentioned in para. 139 are sold at slightly lower rates the revenue from fuel cuttings should be Rs. 11,100. When the Todgarh Reserve is fully worked an additional 5,000 Rs. should be obtained. There appears, however, to be no reason why the revenue given below should not be realised in a few years' time. When a surplus is obtained a larger expenditure should be incurred on boundary works and plantations so as to complete this work as soon as possible. Afterwards a few more inspection paths and some roads are required.

Sources of Revenue and Items of Expenditure.	Estimated average, annual receipts and charges.	Average annual receipts and charges during the past 10 years.	Remarks.
	Rs.		
Timber	200	83	
Fuel	12,800	4,353	
Bamboos	300	108	
Grazing	1,650	3,737	
Grass...	2,350	2,350	
Minor produce	1,000	608	
Miscellaneous	1,000	888	
Total ...	19,300	12,127	
Boundary works...	250	84	
Roads and Buildings	600	541*	* Includes timber works.
Plantation work...	1,500	3,415	
Stores, tools, and plant	100	100	
Establishment	12,400	11,197	
Total ...	14,850	15,337	
Surplus or deficit	+4,450	—3,209	

APPENDIX A.

An agreement which the villagers sign when a Village Bir is taken up for the first time.

The land taken up by the villagers of on the following conditions will not be reserved as a Government Forest as long as those conditions are observed. This land is taken up for 7 years to enable the villagers to see if any benefit is derived from the conservation.

I. Goats will be strictly excluded from the area.

II. *The villagers will pay a monthly sum of* Rs. *for the pay of a* Forest guard.

III. The area will be closed from the beginning of the rains to the end of October.

IV. Grass will be cut in November.

V. Villagers will be allowed to graze their cattle from December to the beginning of the rains.

VI. The grass from a small area marked out by the Forest Officer may be sold each year at the request of the villagers to enable them to recoup themselves for the pay of a Forest guard.

VII. All sums realised from the sale of material or otherwise from this area will be credited to the village fund through the Assistant Commissioner.

By the Ajmere-Merwara Private Forests Preservation Regulation, 1892, the Local Government may, on application through the Collector, by notification in the Local Official Gazette, apply any of the provisions of the Ajmere Forest Regulation, 1874, to these forests, and may at any time cancel any such notification, and may make Rules for the preservation of all or any trees growing on such land.

APPENDIX B_1

Classified list of species noted with their native names.

Natural order.	Latin name.	Vernacular name.
Anonaceae	Saccopetalum tomentosum	Umbi.
Capporideae	Capparis Aphylla	Kher.
	„ Horrida	Gitoran.
	„ Sepiaria	Katán.
	Crataeva Religiosa	Barna.
Bixineae	Flacourtia Ramoutchi	Kekaran.
Tamariscineae	Tamarix Gallica	Jhao.
	„ Dioica	Do.
	„ Articulata	Frásh.
Malvaceae	Bombax Malabaricum	Semla.
Sterculiaceae	Sterculia Urens	Kar.
	„ Colorata	Mutruk.
	Helicteres Isora	Marorphal.
Tiliaceae	Grewia Populifolia	Gangan.
	„ Salvifolia	Seris.
	„ Villosa	Dhokelan.
	„ Pilosa	Pisangan.
	„ Asiatica	Dháman.
	„ Vestita	Do.
Rutaceae	Feronia Elephantum	Kaitha.
	Aegle Marmelos	Bilan.
	Clausena Pentaphylla	Ratanjol.
Simarubeae	Ailanthus Excelsa	Arua.
	Balanites Roxburghii	Hingota.
Burseraceae	Boswellia Thurifera	Salar.
	Balsamodendron Mukul	Gugal.
Meliaceae	Melia Indica	Nim.
	„ Azedarach	Bakain.
	Soymida Febrifuga	Rohan.
Celastrineae	Celastrus Senegalensis	Kakera.
	„ Paniculatus	KanguniBel.
Rhamneae	Zizyphus Vulgaris	Ber.
	„ Jujuba	Ber.
	„ Nummularia	Jharbor.
	„ Xylopyra	Bor.
Ampelideae	Vitis Latifolia	Musul.
	„ Carnosa	Katamba.
Sapindaceae	Sapindus Emarginatus	Aritha.
Anacardiaceae	Rhus Mysorensis	Dásan.
	Odina Wodier	Gol.
	Mangifera Indica	Am.
Moringeae	Moringa Concanensis	Sainjua.
Leguminosae	Indigofera Argentea	Nil.
	Sesbania Aegyptiaca	
	Abrus Precatorius	Chirmi.
	Erythrina Suberosa	Gadichora.
	Butea Superba	Ghorabel.
	„ Frondosa	Dhák.
	Dalbergia Latifolia	Shisham.
	„ Sissoo	„ or Sissoo.
	„ Lanceolaria	Passi.
	Pongamia Glabra	Karja.
	Parkinsonia Aculeata	Bukhán.
	Banhinia Racemosa	Jhinja.
	„ Purpurea	Kachnar.
	Tamarindus Indica	Amli.
	Cassia Fistula	Khirmalia.
	„ Auriculata	Awal.
	Prosopis Spicigera	Khejra.
	Dichrostachys Cinerea	Koulai.

Natural order.	Latin name.	Vernacular name.
	Albizzia Odoratissima	Kalia.
	„ Procera	Safed Siris.
	„ Lebbek	Siris.
	Acacia Farnesiana	Hirkiabalia.
	„ Arabica	Babul.
	„ Jacquemonti	Baouli.
	„ Lencophloea	Arinja.
	„ Rupestris	Kumta.
	„ Catechu	Khair.
	„ Caesia	Janjani.
Combretaceae ...	Terminalia Bellerica	Bahera.
	Anogeissus Latifolia	Goliadhan.
	„ Acuminata	Chiknadhan.
	„ Pendula	Dhokra.
	Anogeissus Sp ?	Indiadhan
Myrtaceae ...	Eugenia Jambolana	Jaman.
Lythrarieae ..	Woodfordia Floribunda...	Dhirni.
Cacteae ...	Opuntia Dillenii	Nagphani thor.
Rubiaceae ...	Staphegyne Parviflora	Kheim.
	Hymenodictyon Excelsum	Lunia.
	Gardenia Turgida	Karumba.
	Randia Dumetorum	Do.
	Hamiltonia Suaveolens	Padera.
Sapotaceae ...	Bassia Latifolia	Mohwa.
Ebenaceae ...	Diospyros Melanoxylon	Timbru.
Oleineae ...	Schrebera Swietenoides...	Mokha.
Salvadoraceae ...	Salvadora Persica	Jal.
Apocyneae ...	Wrightia Tomentosa	Khirna.
	„ Tinctoria	Khirni.
	Holarrhena Antidysenterica	Dhudi.
Asclepiadeae ...	Periploca Aphylla	Khimpri.
	Calotropis Procera	Ak.
Borragineae ...	Cordia Myxa	Gonda.
	„ Macleodii	Godela.
	„ Rothii	Gondi.
	Ehretia Laevis	Tambolia.
Solanaceae ...	Lycium Europaeum	Arak Mendi.
Bignomaceae ...	Millingtonia Hortensis	Nimchameli.
Bignomaceae ...	Stereospermum Suaveolens	Padal.
	Tecoma Undulata	Rohira.
Verbenaceae ...	Clerodendron Phlomoides	Arni.
	Gmelina Arborea	Sewan.
	Vitex Negundo	Negar.
Locanthaceae ...	Loranthus Longiflorus	Kamrukha.
Santalaceae ...	Santalum Album	
Urticaceae ...	Ficus Bengalensis	Bar.
	„ Religiosa	Pipal.
	„ Cordifolia	Paraspipal.
	„ Vergata	Kembri.
	„ Glomerata	Gular.
	Ulmus Integrifolia	Cheril.
Euphorbiaceae ...	Euphorbia Nivulia	Thor.
	Mallotus Philippinensis	Senduria.
	Briedelia Retusa	Lamkana.
	Phyllanthus Reticulatus	Kabonan.
	„ Emblica	Aoula.
	Securinega Obovata	Salepan.
	„ Lencopyrus	Do.
Palmae ...	Phoenix Sylvestris	Khajur.
Gramineae ...	Dendeocalamus Strictus	Bans.
	Bambusa Arundinacea...	Katlang.

APPENDIX C.

Description of the boundaries of some of the fellings.

MADAR HILL.

Coupe 8. S. boundary the Tutikola nullah from pillar 25 to a whitewashed heap of stones on the ridge. E. boundary, a line joining this point to M. pillar on the road side.

Coupe 9. E. of 8. N. boundary, foot path from pillar 2 towards the Meteorological Station. E. boundary, a ridge running N.E.

Coupe 10. N. of 9. S. boundary, the foot path from pillar 2 to a point between pillars 11 and 12.

Coupe 11. S. of 10. S. boundary, a ridge at right angles to the main ridge as far as pillar 15.

Coupe 12. S. of 11 and W. boundary, the main ridge.

Coupe 13. S. of 8 and E. „ „ „

MOHWA BIR.

Coupes 1-7 Artificial lines as shown on the map.

Coupe 14. E. and N. boundaries, a ridge running to pillar 12.

Coupe 15. Situated in Mendikola. E. and W. boundaries, two parallel ridges meeting at Municipal pillar No. 14.

Coupe 16. W. of 15.

Coupe 18. S. boundary, a line between the cuttings of 1889 and 1890 to the ridge.

Coupe 19. S. boundary, a line between the cuttings of 1885 and 1886 to the ridge.

NAGPAHAR.

Coupes	1	and 2	are in compartment	VI.
„	3-6		„ „ „	V.
„	7	and 8	„ „ „	IV.
„	9-11		„ „ „	III.
„	12-17		„ „ „	II.
„	18	and 19	„ „ „	I.
„	20		is „ „	VI

Coupe 16. Includes the cutting of 1891-2 and part of 89-90.

Coupe 17. N. of 16, as far as the fire-line.

Coupe 18. Includes the cuttings of 1885 and 1886.

Coupe 19. „ „ „ „ 1883 and 1884.

Coupe 20. On the S. E. side „ „ „ 1887-92.

Taragarh Valley.

In Imli Kund 5 coupes.

„ Barinal 10 „

„ Nalchashma 5 „

Coupe 6. N. boundary, a line joining pillar 26 to the point where the inspection path branches into 2.

Coupe 7. N. boundary, a line joining pillar 14 to the S. edge of the sample plot.

Coupe 9. N. of 6 N. boundary, a line joining pillar No. 27 to the point where a path from the S. E. meets the inspection path.

Coupe 10. The remainder of Compartment V.

Coupe 11. S. portion of Compartment VII. N. boundary, a line from 2 Arinja trees (marked) to a point on the ridge, S. of a high peak.

Coupe 12. N. of 11. N. boundary, a line from a Shisham and Dhak tree (marked) to a gap in the ridge, N. of the peak.

Coupe 13. S. portion of Compartment VIII. bounded on the north by a line at right angles to the inspection path from a large Dhak tree (marked).

Coupe 17. S. portion of Compartment IX. bounded on the North by a ravine proceeding from the inspection path toward a Municipal boundary pillar on the ridge.

Coupe 18. N. of 17. N. boundary, a line from the corner of the mangoe tope straight up the hill.

Coupe 19. The remainder of Compartment IX.

Coupe 20. Compartment XI.

CHANG.

Coupe 1. The portion of Compartment I. that has not already been cut.

Coupe 2. Compartment II. and part of Compartment IV. bounded on the S. W. by the village boundary line between Kaupura and Amarpura.

Coupe 3. Compartment III.

Coupe 4. In centre of Compartment IV. between 2 ridges meeting towards the North W. boundary, a large nullah.

Coupe 5. S. E. of 4 and reaching to the S. W. as far as the fire-line.

Coupe 6. The remainder of Compartment. IV.

Coupe 7. N. part of Compartment. V. bounded on S. by a ridge running from the fire-line to the inspection path.

Coupe 19. Fellings of 1885-9 extending to the north as far as the boundary line of the Reserve.

Coupe 20. Fellings of 1889-93 on the N. side of the ridge and extending to the N. as far as the boundary of the Reserve.

Siliberi.

Coupe 17. E. slope of the hill.

Coupe 18. W. „ „ „ „

Borwar.

Coupes marked on the map (scale 1″=1 mile).

Coupe 9. E. boundary, a ridge running form N. to S.
S. boundary, a line form a gap in the ridge to a point where the boundary line forms an acute angle.

Coupe 10. E. of 9. S. boundary, a nullah running E. and W. towards to ridge.

Coupe 11. S. of 10. W. boundary, a continuation of the ridge separating Coupes 9 and 10 S. boundary, line E. and W. from near the fire-line

Coupe 12. S. W. of 11. S. W. boundary, a nullah running N. E. and S. W.

Coupe 13. W. of 12. W. boundary, a nullah running N. and S. half way between the western boundaries of the Reserve and of Coupe 12.

Coupe 14. W. of 13.

Coupe 15. N. of 14. E. boundary, a large nullah.

Coupe 16. E. of 15. and W. of 11.

In Chang Gate Bir, Dilwara Bir, Sheopura and Anspahar artificial lines must be taken as the boundaries of the Coupes.

APPENDIX D.

Valuation Survey.

The following is the result of a valuation Survey made by Messrs. Moir and Fernandez in January 1881, area 3½ acres.

Todgarh Reserve, Bagri Block, near Aoula Dák Nála, about 1 mile north of Bagri.

The growth consisted chiefly of Dhokra, with a few Ber and Salar, and some bushes of Pisangan, Tambolia, and a little Thor.

Leaving all the young seedlings, Bushes, Salar, and 6 Dhokra, all the other trees were cut flush with the ground with the axe only. The produce was divided into three classes, which, it was believed, were valuable enough to pay the cost of carriage to the distant markets of Ajmere and Nusirabad. The classes are

(1.) Ballies, poles not less than 8 feet long and from 2-4 inches diameter in the middle.

(2.) Dandas, saplings not less than 8 feet long and from 1-2 inches diameter in the middle.

(3.) Firewood, all pieces not straight enough nor sound enough to be put in the first 2 classes.

The outturn was carefully measured, the firewood being put up in regular stacks. The following was the yield:

	Number.	*Cubic feet stacked.*
	Ballies 30 Dadas 240	150
Firewood		1,236
		1,386

Adding 30 cubic feet for the 6 standards left, the total yield of marketable produce amounts to 1,416 cubic feet.

100 cubic feet stacked=35 mds., which will yield 7 mds., charcoal.

1,236 cubic feet stacked will yield 86½ mds. charcoal.

If all the outturn were converted into charcoal the yield would be 97 mds. or 28 mds. per acre.

APPENDIX E.

Record of the Rate of Growth.

The following shows the results of measurements of coppice shoots.

Age in years.	Dhokra.		Khejra.	Babul.	Ber.	Kalia.	Kumta.
	Height in feet.	Girth in inches.	Height.	Height.	Height.	Height.	Height.
1	1-2	Small	4	3-5	3-7	...	3
2	2-3	"	6	...	8-10	10-12	5
3	3-4	"	7	10	10-12	...	6
4	4-5	1-2	9	...	15	...	...
5	4-5	2	10	...	16	...	...
6	5-6	3	12	...	17	...	...
7	7-8	3-4	...	...	...	...	...
8	8-12	4-7	...	...	...	...	...

Shisham (Sissoo) plants reach a height of 10 feet in 3 years, 20 feet in 6-10 ears, 35 feet with a girth of 2-3 feet in 11-15 years, after they have been plant-d out in the forest. Nim seedlings grow rapidly especially on moist ground, a eight of 30-40 feet has been reached in 8 years in the Sendra nursery.

Most of the scrub jungle species in 4-5 years attain their former height.

APPENDIX F.

Description of the Crop in each Reserve or Block.

Reserve or Block.	Area.			Situation and Soil.	Condition of the Crop.	Remarks.
	Forest.	Cultivation.	Total.			
1. Mohwa Bir.	1,835	50	1,885	Hilly ground. Hills with irregular outline and rather steep slopes. Highest point 2276 feet or 700 feet above surrounding country. Rock quartzite on higher slopes, mica schist on lower. Soil shallow and inferior, but fairly good at the foot of the hills.	A scrub jungle of Dasan, Gangan, Salopan, Kamta, and inferior species, containing a large quantity of Thor, and scattered Nim trees. Where the soil is good enough there is a fair quantity of scattered Dhokra, Babul, Khejra, and Arinja on level ground, a few scattered Salar trees and seedlings on the hills. Reproduction of Nim and Kamta and under Thor bushes of Dhokra, Nim, and other species.	Coppicing since 1883-4 to be continued.
2. Madar Hill.	850	...	850	Hilly ground. One main ridge running North and South with steep slopes. Highest point 2623 feet or 1000 feet above the surrounding country. Rock and soil as in Mohwa Bir.	Crop as in Mohwa Bir. The growth is more open on the East side than on the West. In the N.-W. corner on level ground a number of stunted Babul, Khejra and Nim.	Coppicing since 1888-9 to be continued. Contained nothing but Thor, when first taken up.
3. Nagpahar.	2,479	...	2,479	Slopes and ridge of a hill that runs from N.-E. to S.-W. On S.-E. side slopes are gentle and extend above half way up the hill. From this point to the top the ground is precipitous. On the N. W. side the slopes are fairly steep and not precipitous near the top. Rock quartzite on the higher slopes, gneiss on the lower. Soil on N.-W. side good and at the foot of the hill deep. On S.-E. side shallow and covered with loose stones and boulders of quartzite.	On the S.-E. side, lower half, a scrub jungle 6-7 feet high of Dhokra, Thor, Dasan, Gangan, Bor &c., with a few scattered Nim trees. On the upper half Salar and Thor. On the N.-W. side growth better especially at foot of the hill where the growth of Dhokra becomes thick in places and is about 10-20 feet high. Same species as on S.-E. side plus Kalia and a few species requiring good soil. To the West of the cuttings for a short distance the ground is rocky and the growth poor. On the ridge Salar, Gol Dasan, 6 species of Grewia, and in ravines on Western side clumps of Bamboos. A plantation of Mangoes at the foot of the hills has done well. In another place a plantation of Mangoe, Mohwa, Shisham, and Jaman, but all dead. A small plantation of Shisham is doing well. Reproduction good.	Coppicing since 1883-4 to be continued. Growth can be cut about ¼ way up the hill on both sides. This is the best of the Ajmere forests.

Reserve or Block.	Area.			Situation and Soil.	Condition of the Crop.	Remarks.
	Forest.	Cultivation.	Total.			
4 Makarwali.	2,657	18	2,675	A continuation the Nagpahar range to the N.-E. with the same physical features. Rock and soil as in Nagpahar at the foot of N.-W. slope sand dunes.	On S.-E. side resembles corresponding side of Nagpahar, but more backward because only protected since 1884. At N. end masses of granite and growth is poor. On N.-W. side for about 1 mile from S. end crop doing well and will in time resemble Nagpahar. Further north crop very open. Upper half of whole of N.-W. slope is very bare. On the sand dunes natural reproduction is proceeding slowly. Ground covered with a thin crop of grass, and seedlings of Kumta, Thor, Bor, Kakera, and hardy species beginning to appear.	Continue re-stocking of sand dunes and protect the remainder.
5. Taragarh Valley.	1,203	23	1,226	Three valleys between two parallel ridges, valleys separated from each other by rising ground and form three blocks. Elevation of ridge 2855 feet or 1300 feet above the town of Ajmere. Highest point of valley 600 feet above Ajmere, slopes steep, precipitous near the top. Rock quartzite, gneiss and diorite near the junction of the valleys. Soil on hills inferior and shallow in the valleys, deep and sandy good.	Differs from the other Ajmere forests in that it contains a large number of trees and a small proportion of shrubs. On the hill sides a dense growth of Salar saplings now about 10 feet high, and on the W. aspect, chiefly near the top a large number of Bamboos. This growth is best in the S. portion of the Reserve. Natural reproduction good. Grass crop good, and is all cut.	May be coppiced.
Imli Kund.	...	...	...	Resting against the Eastern side a large quantity of blown sand.	Growth on the Eastern side is principally Salar and Kumta. On W. side trees of all the common species are found, but *little* or no Dhokra and a small proportion of shrubs. In the valleys many Dhak, Khajra, Arinja, Babul, 1 or 2 Kulia and about 200 Shisham trees planted 10-15 years ago and already bearing seed.	Shisham should not be *cut at present and a* number of Babul, Khejra, and Aringa left as standards.
Barinál.	...	...	...		Southern half resembles Imli Kund and contains about an equal number of Shisham. Northern half a rather open scrub jungle mixed with a number of trees such as Khair, Khirni, Koulai, Nim, Tambolia. On the W. side a good deal of Dhokra is found, but very little on the eastern.	Do.

Narchashma.	...	...	...		An open scrub jungle with a large number of trees. On the west side the crop consists of Salar and Kumta, on the east the usual species.	Some Arinja, Khejra, and Babul, should be left as standards.
6. Srinagar Srinagar Block.	3,623	...	3,623	The N.-W. and S.-E. slopes and ridge of a hill that runs from N.-E. to S.-W. Rock on N.-W. side gneiss, along the ridge quartzite and on S.-E. side mica schist containing garnets. Soil on N.-W. side fairly good, in places, on S.-E. side inferior and sandy.	On S.-E. side an inferior scrub jungle of Kumta, Thor, Dasan, Gangan, &c., with a few Dhokra here and there. *On N.-W. side the same species with scattered trees of Nim*, Babul, Khejra and Hingota, and on good soil some patches of Dhokra.	Nothing but protection at present.
Bir Block	...	...	...	Undulating ground bounded on the west by the eastern slope of a hill and on the east by the western slope of another parallel range of hills. Rock on the eastern side quartzite, and on the western mica schist. Soil between the hills sandy and poor, on the hills shallow and generally inferior.	An open scrub jungle consisting of Thor and inferior species with a little Dhokra on the hills especially on the eastern side of the Reserve. On upper slopes a few Salar and Gol. Natural reproduction not much except of Kumta, Nim, Salar, and Gol. On level ground a few Khejra and Babul. Much sowing and planting has been done here, but *not much* result. A few Shisham planted near a well are doing well. Grass crop good, but of inferior quality.	Nothing but protection at present.
7. Danta Reserve.	1,429	...	1,429	Undulating ground bounded on the east and west by the ridges of 2 parallel hills. Rock quartzite and at the northern end mica schist. Soil sandy and very poor.	A scrub jungle of Kumta and Thor, &c., with a few Dhokra bushes on the hills. Growth very open and poor. A few Babul, Khejra, and Arinja, due to sowings of former years. Reproduction of Kumta a little, and of Nim under Thor bushes, a *small plantation of Shisham near a well is progressing* very favourably. Grass crop good, but of inferior quality.	This is the worst of the Reserves. The Executive Engineer wishes to do away with it because (he says) it prevents the water flowing into the Danta tank.
8. Rajosi Reserve.	1,303	...	1,303	Hilly ground. One main ridge stretching from N.-E. to S.-W. and a small area of level ground at the base of the hills. Rock generally quartzite. On N.-W. side some sand dunes, and on S. E. side some sandy soil near where cross fire-line meets the boundary line.	A scrub jungle of the usual type containing a great deal of Thor, Kumta, and scattered Nim trees. On the hill sides a good deal of Dhokra, small as yet (3-5 feet high) and in places fairly thick. Along the ridge seedlings of Gol, Salar, and Kar, with a few Kalia on the Western side and *Dhaman*. In the northern half the hill slopes are very bare. At the foot of the hill 2 or 3 patches of Babul trees (15 feet high) due to sowings of former years. Blanks where soil is sandy. Reproduction of Kumta and Nim. Grass crop good but of inferior quality.	This area contained nothing but Thor and roots of shrubs when first taken up.

Reserve or Block.	Area.			Situation and Soil.	Condition of the Crop.	Remarks.
	Forest.	Cultivation.	Total.			
9. Rajgarh Reserve Kotaj Block.	2,653	...	2,653	Hilly ground. One main ridge with numerous spurs branching into two towards the north. Hill slopes ste p and ridge very narrow. Rock along the ridge quartzite, below gneiss. Soil on hill sides good, at foot of hills N.-W. side sandy, on S.-E. side fairly good, but hard on the surface.	A scrub jungle of the usual species containing a good deal of Thor and scattered Nim trees. On N.-W. side a great deal of Dhokra, formerly grazed down to the ground, now beginning to spring up, the shoots being about 3 feet high. On S.-E. side less and of inferior growth. Along ridge Salai, Gol, and Kar seedlings. At S. end at foot of the hills Babul, Arinja, Khejra, and Hingota. Hardly any reproduction except of Kumta.	Will in time form a good forest. The Dhokra might be cut to improve the growth.
Kaklana Block.	...	...	...	Same soil and physical features as Kotaj.	The crop resembles that of Kotaj, but is more open.	
10. Dilwara Bir.	232	...	232	Nearly level ground. Soil hard resting on gneiss with a few patches of good soil.	A large number of Kumta and other trees and a small proportion of shrubs. The principal trees are Nim, Khejra, Arinja, Babul (not doing well), Khair (due to sowings and small as yet) Jhinja, 1 or 2 Dhokra. There are a few small patches where Khair is coming up, thick grass crop is good.	To be coppiced after Chang Gate Bir, leaving a good many standards, and Khair to be sown.
11. Chang Gate Bir.	49	...	49	Nearly level ground. Soil resembles that of Dilwara Bir.	A nearly pure forest of Kumta, some of the trees being 15-20 feet high and 1-2 feet girth. All ages represented from seedlings to mature trees Large Nim trees form standards over the Kumta forest. S. end is open and contains Babul, Khejra, Arinja, and Hingota.	To be coppiced commencing from the N. end and Khair seed sown.
12. Balad.	13	...	13	Low lying ground below the bund of a tank. Soil deep and moist except a small portion at W. end where granite rock crops out.	On good soil Babul of excellent growth, which requires thinning in places. On rocky ground Dasan and inferior species.	Being planted up with Bamboo, Mangoe, Shisham, &c. This is unnecessary. Babul grows well here and fetches a good price. Sow up all the blanks with Babul seed.
13. Jalia.	37	...	37	Low lying ground below the bund of a tank. Soil swampy, except a narrow strip at the base of the bund.	On swampy ground unhealthy looking Babul trees, scattered Tamarin shrubs, and a thick growth of Sesbania Aegyptica. At base of the bund Babul trees of excellent growth.	A nursery is being formed here to plant up the area with Shisham, &c. This is unnecessary.

14. Chang.	2,918	29	2,947	Hilly ground. One main range of hills forming a small plateau. Slopes on E. side steep, W. side gentle forming a broad valley. Elevation 2402 feet or 800 feet above surrounding country. Rock granite and quartzite on upper slopes, gneiss on the lower. Soil good. At the S. end rock mica, schist and soil sandy.	In the Northern portion a Dhokra forest 15-20 feet high mixed with other species. This forest extends up the slopes and covers the tops of the hills. The principal species are Dhokra, Khair, Kalia, Pasi, Nim, Khirni, and the usual species, with Babul, Arinja, and Khejra on level ground, Salar, Gol, Semla on the hill sides, and Kadam in the nullahs, crop in places is very dense. In the Southern portion extending roughly from the second fire-line a mixed forest of Kumta and inferior species with sometimes a few scattered Dhokra. Natural reproduction good, seedlings of nearly all species.	After Todgarh this is the best forest. Coppice fellings since 1885-6 to be continued. The whole Reserve should be cut.
15. Borwar.	2,401	7	2,408	An irregular shaped mass of hills and valleys, the central portion forming a plateau about 800 feet above the surrounding country. Slopes steep and in places covered with large boulders of granite. Rock and soil as in the N. of Chang. East of a line drawn from pillar No. 8 to 13, the soil is poor and also in the northern portion. N. of the fire-line.	Contains the same species and very much resembles the crop found in Chang. The growth covers the slopes and tops of the hills. On the hills a large quantity of Salar and Gol, and a few Kar. In some ravines the Dhokra forest is thick. Natural reproduction good. A few Bamboos planted 7 or 8 years ago are doing well. On the two patches of inferior soil a scrub jungle of Kumta, &c. Grass crop is poor.	Should be cut after Chang. No sowings or plantings are required.
16. Siliberi	520	...	520	Eastern and western slopes and top of a hill with a well defined ridge. Slopes steep and covered with masses of rock. Rock and soil the same as in Chang and Borwar, except a small patch on the E. side at S. end where the rock is diorite, and the soil is poor.	Contains the same species but is not yet of the same quality as the crop in Chang and Borwar, because only protected since 1884 and grazing has been allowed for the last 5 years. At N. and S. ends the growth is poorer than in the central portion. The growth is more open and there is more Thor than in Chang and Borwar. Not much reproduction yet, but a few seedlings of Dhokra, Kumta, and a few other species.	To be cut after Borwar, i. e., in another 16 years. Khair might be sown here, but it is not necessary.
17. Kotra.	1726	3	1729	Hilly and level ground. A well defined ridge along the eastern side with an elevation of 2144 feet or 700 feet above the surrounding country. Rock on the hills quartzite, gneiss and limestone, and the soil is fairly good. On level ground sandy. In places mica, schist and the resulting soil is poor.	Crop very open. On level ground a great deal of Ber, Dhak and inferior species. On the hills many Salar and Gol trees and seedlings. On the slopes of the main ridge a good deal of Dhokra, but very open. In time it will probably spread and form good forest. Scarcely any natural reproduction except Salar. Same species as in Chang but hardly any Thor, though crop is very open. Khair sowings here have given very good results. A good crop of the best kinds of grass.	To be protected. Sowings of Khair to be continued on a large scale, the most suitable soil to be sown up first.

Reserve or Block.	Area.			Situation and Soil.	Condition of the Crop.	Remarks.
	Forest.	Cultivation.	Total.			
18. Sheopura.	2747	39	2786	Situated on portion of an elevated plateau 200-300 feet above the plains of Beawar. At the N. end small parallel ranges of hills, the remainder consists of undulating ground. Rock quartzite, mica, schist or limestone. Soil very shallow and barren but at the S. end is better.	A scrub jungle of Dasan, Gangan (mang), Koulai, Khair (very few), Kumta, &c. with scattered trees of Nim, Salar and Gol, sometimes becoming a nearly pure Kumta forest. Growth often very thick. Patches of Dhokra are found in depressions among the hills. Khejra, Arinja, and a few Babul on level ground. Natural reproduction of Kumta (much), Khair, Koulai, Bor and Nim. The S. portion forms the Sheopura extension block. The growth is of the same character but not so thick. At the S. extremity reaching as far north as pillar No. 10, a few scattered Dhokra and Khair with Salar and Nim, which will in time form good forest. The grass crop is of inferior quality with scattered tufts of good grass.	Should be cut commencing from the N. end. Being near Beawar, the produce should be saleable.
19. Anspahar.	1579	60	1639	Northern half hills with steep slopes, Southern half undulating ground. Rock gniess with large veins of felspar and sometimes coarse-grained granite. In places Kankar. Soil generally good but rock is often close to the surface.	A forest of Salar, Gol and Khair with Dhokra and Kalia. Khair trees and seedlings are abundant in the S. portion and Kalia is also common. There are a few patches of inferior soil and here Salar, Kumta, and Thor are the principal species. The growth to the N. is not so good as that to the S. Along the nullahs Khejra, Dhak, Hingota and Ber are found. There are not so many Salar as in Beliawas, but a large quantity of the most important species Dhokra, Khair, and Kalia. The grass crop is thin.	Ready to be cut. Should be felled after the N. half of Sheopura.
				GRAZING CIRCLE.		
20. Beliawas.	3237	99	3336	Hilly ground but the slopes of the hills are not steep. Rock gneiss containing a good deal of felspar. Soil rocky, hard on the surface and generally inferior.	A thick forest of Salar, Gol, and Kumta with an admixture of inferior species such as Dasan, Gangan, &c. Dhokra is found in places especially at the W. end on N. and W. slopes of hills. There is also a sprinkling of Khair and Kalia. Along nullahs there is a great deal of Ber, also Dhak, Khejra, Arinja, Hingota, and Babul (from sowings). Natural reproduction of all species and of Kumta much. Grass crop inferior, being generally mixed with herbaceous growth.	The ground should be broken up round Kalia Khair, and Dhokra, to encourage the growth of seedlings.

21. Amner Reserve Nadawat Block.	4088	26	4114	E. and W. slopes and top of a hill. Rock felspatic. Soil good.	Dhokra shrubs 3-5 feet high with Nim trees and seedlings mixed with Koulai, Khair, Kumta, and a few other species. Growth uniform up to the top of the hill. Slopes and ridge a few Salar trees, growth better on W. side than on E. S. end W. side growth very poor and open. Grass crop good.	The Dhokra might be cut to improve the growth.
Kukra Block.	...	...	...	One main ridge with steep slopes along the eastern side and undulating ground to the west. Elevation 800 feet above the surrounding country. Rock gneiss with the layers, vertical soil good.	A mixed forest of Dhokra, Khair, &c. with scattered Salar trees. This block contains many more Khair trees and seedlings than are to be found any where else. Dhokra seedlings many. Kalia, Shisham, Goliadhan, Bilan, and clumps of Bamboos are found along the ridge and seedlings of these species. Grass crop good.	Condition of the crop is very promising.
Ajitgarh Block.	...	...	...	Along the S.-E. boundary a hill with steep slopes. The remainder undulating ground or hills with gentle slopes. Rock schistose with a good deal of mica, quartzite, or coarse grained granite. Soil inferior.	Along the ridge the crop resembles that of Ajitgarh, but there is less Khair. The remainder is very open and poor, and N.-W. portion extremely so. Salar trees with 1 or 2 Nim, Khair, Dhokra, Ber, &c. The grass crop is inferior.	
22. Banjari Reserve.	4,621	110	4,731	A number of small hills 100-200 feet high with gentle slopes. In the northern portion the hills are higher and slopes steeper. Rock gneiss, and a great deal of a coarse grained felspatic granite, soil fairly good, but shallow on the steeper slopes.	Growth very open. S. portion a scrub jungle of Thor, Dasan, Gangan, &c., with a few trees of Nim, Goliadho, and Kankaran. Dhokra is found in sheltered places, but is stunted and of poor growth. Further north the growth improves and there is more natural reproduction, and other species are found, e.g., Shisham, Mokha, Kalia, Aoula, and Bilan. At the Northern end many Salar and Gol. The central portion contains the best growth. Natural reproduction of Salar, Khair, Dhokra, Goliadho, Koulai (much) and Ber.	
23. Todgarh Reserve, Bagri Block.	33,842	207	34,049	Hilly ground. Two well marked ridges running N.-E. and S.-W. with steep slopes. One in the centre of the block, the other along a portion of the E. boundary. Rock grey grained granite or gneiss, soil good. N. and W. of the fellings rock quartzite and soil inferior.	A nearly pure forest of Dhokra 15-20 feet high with many large Salar trees on the ridges and steeper slopes. With Dhokra are associated a good many Khair, a few Kalia, &c., natural reproduction good of Dhokra, Khair, Kalia, Salar, &c. N. and W. of the fellings the growth is very open and consists of a scrub jungle of Kumta, Khair, inferior species and Salar trees. Dhokra is found in places among the hills. Reproduction not much except of Salar, Khair, and Kumta. Along the nullahs, Ber, Dhak, Khejra, Lamkana, Kheim, and Gular are found.	Fellings have taken place in this block since 1884-5 and should be continued.

Reserve or Block.	Area.			Situation and Soil.	Condition of the Crop	Remarks.
	Forest.	Cultivation.	Total.			
Sirma Block	...	...	...	Hilly ground. One main ridge along the E. side with an elevation of 2235 feet. Rock and soil as in Bagri.	Crop not so dense as in the best parts of Bagri. Dhokra, Kalia, &c., between the hills, Salar and Gol on the upper slopes.	
Bagmal Block.	...	...	...	Two or three parallel ranges of hills with broad valleys between them. The slopes of the hills are steep. Mangat hill, the highest range, has an elevation of 2786 feet, or 1200 feet above the surrounding country. Rock, gneiss. Soil, fairly good.	A rather open forest of Dhokra mixed with Khair, Kalia, a few Mokha and other species with Salar and Gol on the upper slopes. This forest extends about half way up Mangat Hill and is denser on the Eastern side than on the Western. On the higher hills Goliadho, Kankaran, Shisham, Dhaman, &c., are found, and on Mangat Hill a few Bamboos. Not much natural reproduction except of Dhokra. A good crop of grass.	
Raoli Block.	...	...	...	Hilly ground. Rock, gneiss, soil good. Near the eastern boundary a patch of level ground with inferior sandy soil.	A good Dhokra forest between the hills with scattered trees of Khair (many large trees in places), Kalia, Mokha, &c. At higher elevations Goliadho, Shisham, Bamboos, Salar, Gol, &c. Reproduction good. On inferior soil near the eastern boundary a scrub jungle of Per, Dhaman, &c.	Much Goliadho in this block has been killed by drought. The trees might be cut flush with the ground to encourage the growth of coppice shoots.
Dudalia Block.	...	...	...	Hilly ground. Rock and soil as in Raoli.	A good Dhokra forest almost pure but mixed with a few Kalia, Khair, Tendu, and other species. At higher elevations Goliadho, Salar, Gol, a few Sesam, &c. Along nullahs, Dhak, Khair, Umbia, Cheril, Jaman and other species. Reproduction good. An area of 83 acres containing a large number of Rohan has lately been added to this block.	A great many Dhokra and Goliadho trees have had their top branches killed by frost during the late famine.

Kachbali Block.	...	...	...	Along the eastern side a plateau with steep slopes to the west. Along the W. side the Goramji range of hills with steep slopes on both sides. Between the two ranges a broad valley. Goramji elevation 3075 or 1200 feet above the surrounding country. Rock, gneiss; soil, good. The upper part of Goramji consists of quartzite.	Along the plateau on the E. side an open forest of Goliadho, Kankaran, Salar, &c, with scattered clumps of bamboos from near pillar 134 to No. 145. In the valleys a Dhokra forest often very thick and containing a large number of seedlings, with scattered trees of other kinds. The zones of growth are very clearly marked on the slopes of Goramji.	
Dewair Reserve.	12,966	101	13,067	Hilly ground with many deep valleys and ravines. Hill slopes steep. Five large nullahs pass through this Reserve from east to west. Rock, gneiss, quartzite, and mica schist. Soil generally shallow and inferior and hard on the surface, but along the nullahs it is good and deep.	An *open forest* of stunted Salar, Gol and Thor mixed with a number of other species. A few patches of Dhokra here and there in the ravines, but no large extent of Dhokra covering whole hill sides, such as is found in Todgarh. On the eastern side as far S. as the first nullah is a scrub jungle of Dasan, and inferior species with scattered Dhokra bushes. Patches of Kumta forest are found on sandy soil. On level ground and near small nullahs there is a good deal of Dhak. Along the large nullahs many Jaman, Gular, Lamkana, Cheril, Umbia and many other species are found with much reproduction, but in other parts of the Reserve little or no reproduction except of Salar. This Reserve contains more bamboos than any other.	All or nearly all the species of Ajmere and Merwara are found in this Reserve.

Copy of letter dated 18th March 1893, from E. M. Coventry, Esquire, Working Plans Officer, Ajmere, to the Commissioner of Ajmere-Merwara.

I have the honor to inform you that I have now seen nearly all the Ajmere-Merwara forests and to forward my suggestions as to their future management.

2. *The Inspector General of Forests, in his printed remarks on the preliminary report* says that "the regularization of the grazing and the selection of areas which must in the main be treated for the production of fodder is practically the most important question with which the plan should deal."

3. *The Ajmere Forests* form 1·4 per cent of the total area of the district. The price of fuel in Ajmere is very high; and people from Ajmere go to the Srinagar and Danta Reserves, 8 miles distant, merely to collect dry "Ther" and dry sticks; the growth in these forests is very poor, but everything in them can be sold; so that, I think, grazing should not be allowed in any of the Ajmere forests as there is no doubt that cattle grazing does a great deal of harm, principally by rendering the ground so hard that no seedlings can germinate, and also by trampling on and destroying any that do come up.

4. These forests will always contain a large quantity of grass, and the period during which the cutting of grass is allowed might be extended if considered desirable, but, I think, that grazing should be altogether excluded except in years of great scarcity.

5. In Merwara the same remarks apply to the forests in the Beawar Tehsil with the exception of the *Beliawas* and *Kotra* blocks. In Beliawas grazing might be allowed as has been done hitherto. Kotra contains a large quantity of very good grass, but the forest growth is poor, so that this block might be treated as a fodder Reserve.

6. In the Todgarh Tehsil the forests are far from the markets and very little produce is extracted from them so that grazing might be allowed in them. As regards regulating the grazing, one-half of these forests might be opened for a period of ten years, and at the end of ten years grazing might be allowed in the other half, the first half being closed to grazing. The half which is closed would from a Reserve to be opened only in times of great scarcity.

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Copy of endorsement No. 1 F, dated the 3rd April 1893, from the Officiating Commissioner, Ajmere-Merwara, to the Extra Assistant Conservator of Forests, Ajmere-Merwara.

Copy* forwarded to the Extra Assistant Conservator of Forests, Ajmere-Merwara, with a request that he will submit a clear but brief report showing what the practice has hitherto been as regards each Forest Reserve in Ajmere-Merwara in connection with (1) grazing both in times of scarcity and in ordinary years, (2) *grass cutting* and (3) *fuel cuttings*.

* Copy of letter dated 18th March 1893, from Mr. Coventry Working Plans Officer, Ajmere-Merwara, to the Commissioner of Ajmere-Merwara.

2. The report should show what changes Mr. Coventry's proposals if accepted will introduce together with an expression of the Extra Assistant Conservator's own opinion, whether his suggestions may with advantage be adopted, or what modifications, if any, are required.

From the Extra Assistant Conservator of Forests, Ajmere-Merwara, to the Commissioner and Conservator of Forests, Ajmere-Merwara. No. 25 dated 20th April 1893.

With reference to Mr. Coventry's proposals for the future working of the Ajmere and Merwara forests communicated to me under cover of your office endorsement No. 1 F, dated 3rd instant, I have the honour to state as follows:—

With the view to provide the continued growth and reproduction of fodder trees and bushes on which cattle in these districts so largely depend in absence of grass in very dry years and also to meet the local demand for fuel wood which is gradually growing, Mr. Coventry very properly proposes that all the Reserves near Ajmere and Beawar be closed against grazing, except in famine years when all the Reserves will have to be thrown open. The number of such Reserves is 19* out of 24. It might be said that the closing of such a large number of villages will cause undue hardship to the surrounding villagers. But in the first place grazing is not a right under the Regulation and (2) grazing has not been allowed in ordinary times except in years of scarcity and so they are not accustomed to it. As a set off the period for cutting grass (which is 6 weeks in Ajmere and 4 months in Merwara) might if desired be further extended so as to give the villagers ample opportunity to cut and store as much grass

as they can for their cattle. This is in accordance with the policy of the Government of India. The forest Reserves in which Mr. Coventry thinks cattle might be annually allowed are 5 :—

1. Todgarh
2. Dewair.
3. Banjari Mandlan.
4. Amner.
5. Beliawas. All in Merwara.

These Reserves are far removed from the market (Beawar) and from the nearest Railway line and are such that either the growth is so poor that it cannot be sold as Salar forests of Banjari-Mandlan, Amner, &c., or they are advanced enough to admit of grazing as Todgarh. Hitherto only 3 Reserves—Todgarh, Dewair and Beliawas have been opened annually in accordance with professional advice of 2 Forest Officers, Messrs. Moir and Fernandez. Mr. Coventry under the proposed arrangement adds on 2 more Reserves—Amner and Banjari-Mandlan. I see no objection but I think that either the number of cattle in these two Reserves should be restricted to what the areas can support or if the full number of cattle be admitted the period for grazing be reduced from 4 to 2 months or more or less as the case may be, so as to reduce unnecessary strain on the forest. I quite agree with Mr. Coventry in the selection of grazing areas but I am sorry I have to differ from him on one point. In order to regulate grazing he proposes to divide each of these Reserves into 2 portions to be opened in rotation of 10 years. My objections are: (*a*) The area of 2 Reserves—Amner and Banjari Mandlan, is small in comparison with the number of cattle owned by villagers, vide Annual Reports for past years. So that the acreage per head is already low. If these forests be treated on the proposed plan the acreage would be still further reduced, the forests will be over grazed and reduced to the condition of outside village lands. (2) Villages are irregularly situated all along the Reserve and it would be impossible to draw a line through the middle of the Reserve which would satisfy the villagers concerned. The distance to be daily travelled by cattle to and from the forests would be quite prohibitory in some instances and also when the forest is internally divided up into a number of areas belonging to each village. I doubt if the village limits will be observed intact for grazing purposes. (3) There are but very few places inside forest where water in the hot season is found. At present cattle graze within forest but drink outside. If the grazing area were removed far from the villages, the difficulty of watering will be very great indeed.

In fact the measure is likely to be very unpopular with the people who have so far helped us in the successful management of these forests. (4) It will not be an easy matter for the Forest Department to protect from fire areas continually closed against grazing for 10 years. I think there should be no alteration in the existing practice of allowing grazing all over the area at once and the same time.

Fuel Cutting.

At present wood is cut for fuel in 5 different places. Mr. Coventry also proposes the following Reserves for coppice treatment:—

Viz: 1. Taragarh Valley.
2. Chang Gate Bir and Dilwara Bir.
3. Sheopura and Anspahar.

Hitherto a certain number of acres has been annually cut and sold standing by auction at so many Rs. per acre or so much per camel-load, &c. In future a much larger area will be cut and a rotation of 20 years has been prescribed in each case. The cutting of larger areas will however be deferred till the local demand for wood rises. The selection of Reserves for coppice is well planned in my opinion.

In conclusion, I am to state that all the suggestions of Mr Coventry may be accepted with one exception, viz., the division of certain forest Reserves for the purpose of grazing into two portions, each portion to be closed in rotation for 10 years. This point would require your serious consideration.